

W The Hips.
Hips hot.
Hip straid.

X The Flank.
Purpiness Broken
Wind Chest Found
and Light Belly'd.
x Navel gall.

Y The Reins.
Swayd Back

Z The Withers.
the Withers galled
the Shoulder
Straid.

A Diseases of
the Head
the Staggers
Madness &c.

B The Diseases of
the Eyes. Lunatick
or Moon Eyes.
Rheums &c.

C The Nose.
Hemorrhage of
Blood Cold Faln
Strangles Gland-
ers.

D The Mouth.
Barbs Woolfs
Teeth Lampas.

V the Fundament
Worms Lax or Lo-
osness Molten Gr-
eace of falling of
Fundament.

T Stones bruised
or Hardend
Swelld or
Shrunk. &c.

S The Yard.
Pain pipe or Strang-
ry Piping Blood

R The Hough or hant
Hough Straind may be
Sinner Above the
Hough hurt Hough
Bony Spavin Salender
& Cramp r fistle hurt.

Q The Shank.
Rats Tail Mules
Scratches &c.
Kibd Heels.

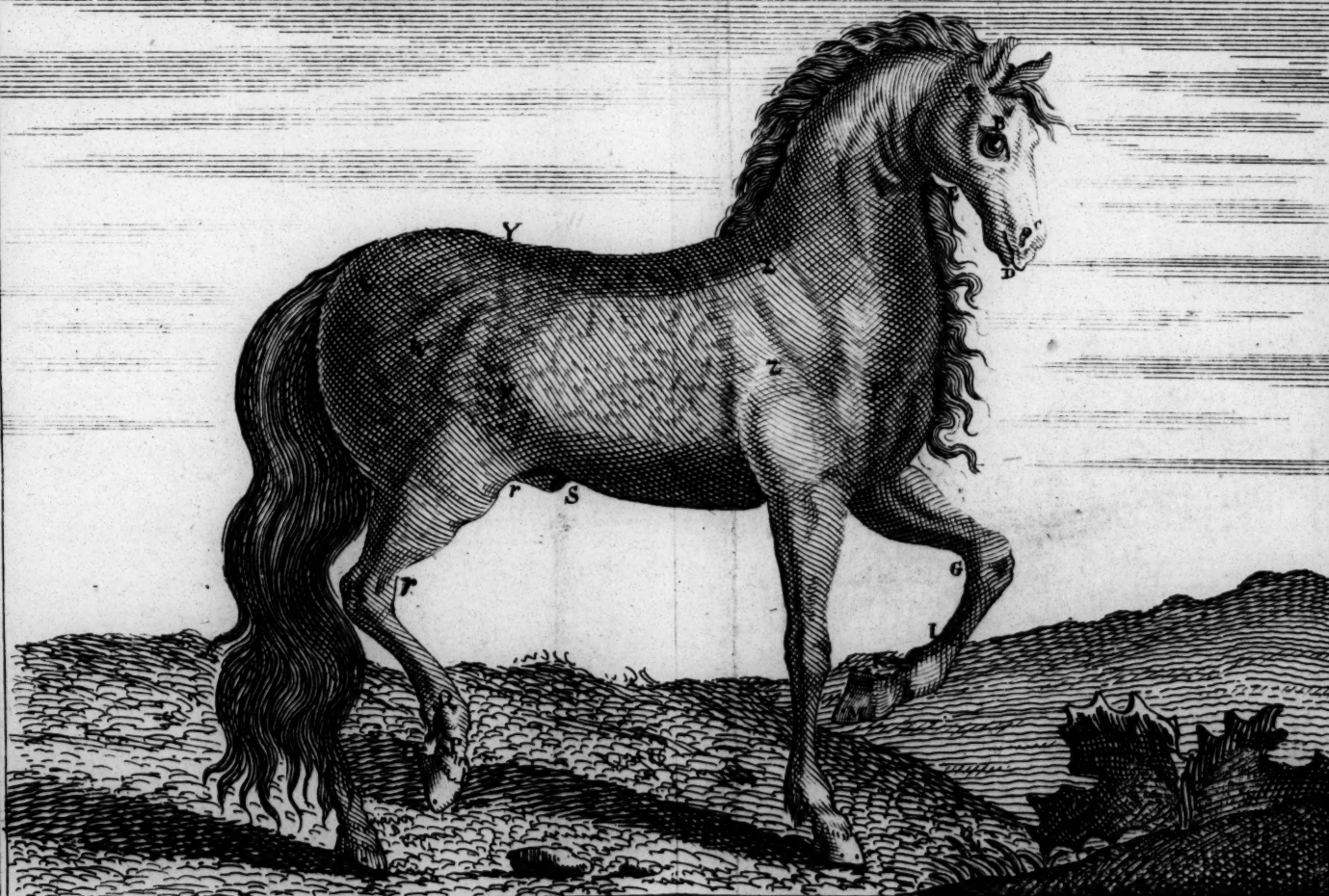
P The Hind Par-
terns. Chinks
& Cravices hard
Warty Excrescences
patterns swelld & goub.

O The Hind Foot
Figs & other
Spungy Excrescen-
ces.

N Hoof & foot Sol-
es pained & Surbald
hoof bound hoof
Perchid Nummies.

Casting of the
hoof false
Quarters foot
Prick'd.

A Table of Diseases. The Letters of the Alphabet Directing to the Parts affected.



E The Overt and
Throat. the Fives.
Strangles and
Stag evil &c.

F The Counter.
the Anti-or, pal-
pitation at the
Heart.

G The Bending of
the Fore Leg.
Malender. &c.

H The Shank.
Windgalls. &c.

I The Back Sinner.
Attaint upper
or over reach on
the Back Sinner.

K The Heel.
Attaint nether or
over reach upon
the Heel.

L The Pastern.
Ringbone &c.

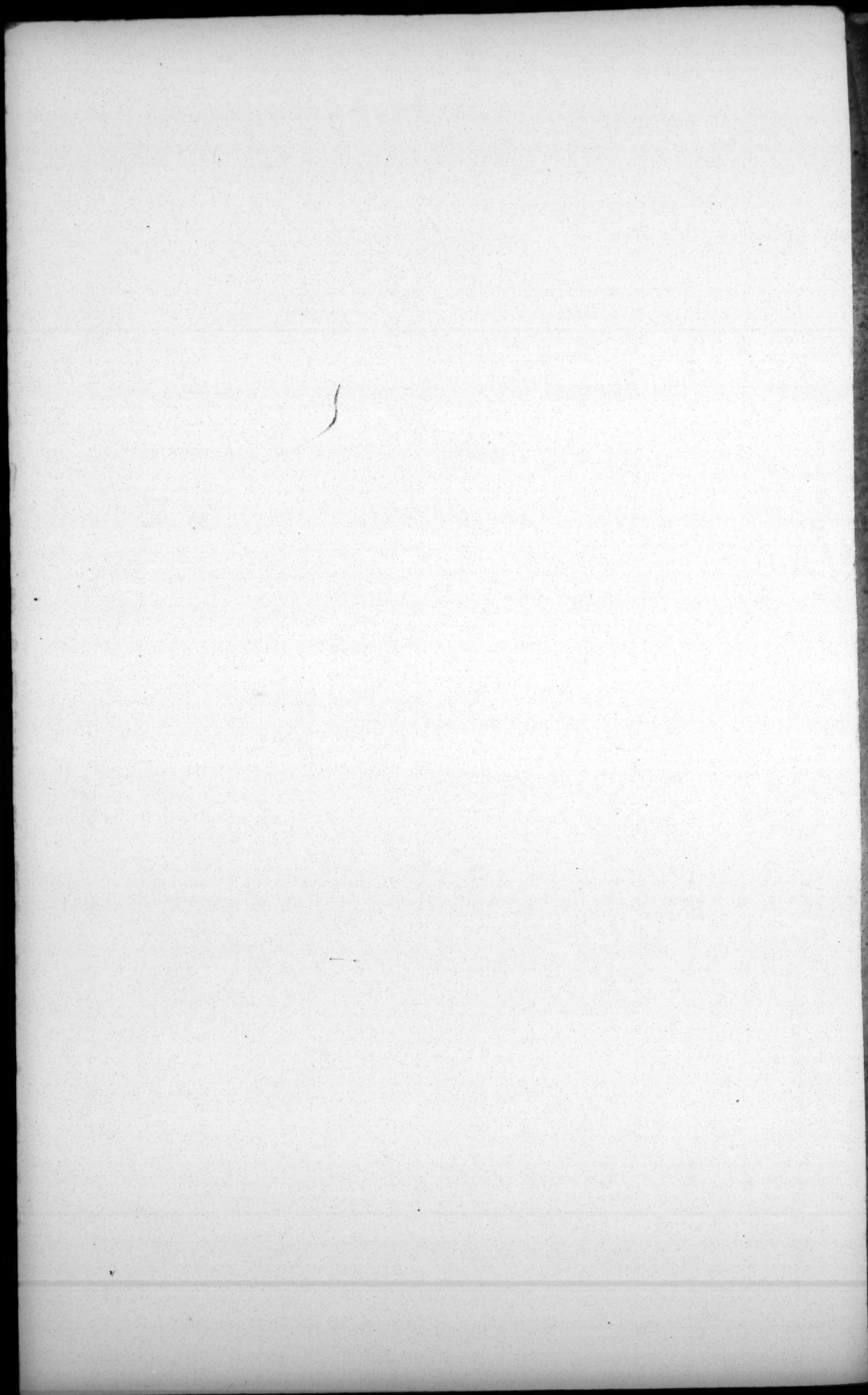
M Coronet.
Tread or Ulcer
upon the Coronet
Quitter Bone.

The FARRIERS new GUIDE.



Instruments & Utensils

To face the Title.



THE 4291 de 8
FARRIER'S
New Guide.

Containing, first,

The ANATOMY of a HORSE; being an exact
and compendious Description of all his Parts; with their
Actions and Uses: Illustrated with FIGURES curi-
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An Account of all the DISEASES incident to
HORSES, with their *Signs, Causes, and Method of Cure*;
wherein many Defects in the Farrier's Practice are
now carefully supply'd, their Errors expos'd
and amended, and the Art greatly im-
prov'd and advanced, according
to the latest Discoveries.

THE

Whole interspers'd with many curious and useful Ob-
servations concerning FEEDING and EXERCISE, &c.

The SEVENTH EDITION corrected.

By W. GIBSON.



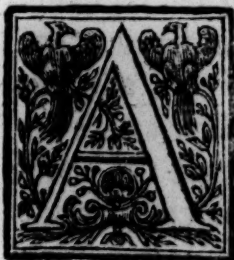
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T H E
P R E F A C E.



S the general Use and Service of Horses has render'd them more worth the Notice and Regard of Mankind, than any other of the Brute Creatures; so there has in most Ages of the World been a more than ordinary Care taken, not only to model and fit them for their respective Services, but also of their Breed and Preservation: And we find Horses were of so great Account with the Ancients, that even *Aristotle*, *Xenophon*, *Pliny*, and others of greatest Genius among them, have bestow'd some of their Labours that Way, being sensible how much a good and serviceable Breed of Horses conduc'd to the Benefit of the Community; both in Peace and War: Neither have the Moderns been less industrious in all these Matters, but have made many excellent Improvements in Horsemanship: For about the time that Painting, Sculpture, and other Arts were reviv'd in *Italy*, the Art of Riding, and of perfecting Horses for the Wars, and in all useful and genteel Exercises, was then also cultivated, and afterwards improved by *Frenchmen*, who went to *Rome* and *Naples*, on purpose to be instructed therein. Though the Perfection to which that Art is now arrived, is by all the ablest Masters throughout *Europe*, justly ascribed to the Noble Duke of *Newcastle*, who

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was not only himself an excellent Horseman, but the best Judge that ever wrote upon the Subject.

But all this while it does not appear, that there has been any Provision made for the Cure of the Infirmities and Accidents to which that noble and generous Creature is exposed, suitable to what his Services really deserve. For albeit the same Persons, who were the first Improvers of Horsemanship, were no less studious of their Diseases, and were also the first of all the Moderns, who seem to have writ professedly of them; yet it must be owned, their Writings are more like Systems of old *Astrology*, than as if they had been composed for the Cure of Horses: Neither can this be thought very strange, if it be considered, that these Authors had no other Means of arriving at their Skill, but by adding from Books of Physick and Surgery, what they judg'd necessary to perfect the common and received Practice of Farriers, which in those Times was of a very masculine Kind, and had been handed down thro' many ignorant Ages, without any other Regulation, than what had obtain'd by Rote and Custom.

Now it is very easy to conceive, how those who are uninstructed in the Principles of any particular Art, may be misled in what they copy and borrow from it; for as they are not Judges themselves, they will neither be apt to make Choice of the best Author; nor can it be supposed, if they did, that they should mend the Matter very much, in a Science so much complicated as that of Physick, &c. and which, by the Ignorance of those and the preceeding Times, was itself embarrassed with many idle and whimsical Dreams, not to be met with, or at least depended on by ancient Writers, and which have been absolutely rejected since the modern Discoveries have cleared the Way to true Knowledge.

And that this was the Case of these Gentlemen, who first put Pen to Paper, on the Diseases of Horses, is evident from their injudicious Collections; for in them

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we have all the Refuse of physical Authors ; and most Books that are at this Day extant upon the Subject, have been formed upon the Writings of those Persons ; so that the Cure of Horses seems to be but very little understood, notwithstanding all the Care and Pains that has been taken to perfect it.

Solleysell was so sensible of this, and of the bad Customs which had obtained among the Farriers of *France* in his Time, that it put him upon a more diligent Search into the Business, by consulting the best Authors of Physick and Surgery, as himself takes Notice ; whereby he has indeed not only deliver'd a more safe and regular Practice, than any that went before him, but has also introduced Methods altogether new, with a great Variety of Medicines, which before had never taken Place in the Diseases of Horses : But yet, for all this, he was himself infected with many of the Errors of his Predecessors ; for he is so scrupulous as to Times and Seasons, and so much ty'd up to Custom, that it even renders his Methods very impracticable in many Circumstances ; and as he was not rightly acquainted with the *Animal OEconomy*, he has accounted for many of the Diseases, not from the true Mechanism of the Body of a Horse, but in a speculative and abstracted Way ; which is so far from leading any one into the Nature and Cause of Diseases, that it must rather bewilder his Pupils, and bring them farther into the Dark.

Nor are these the only Things wherein that Author is blameable ; but if we examine into his Method of Cure, it is so imperfect and perplexed in many Places, by frequent Digressions, that a Man must be well acquainted with the Subject, or at more than ordinary Pains, to reap any great Advantage from it : And as to his Medicines, tho' many of them are, no doubt, extraordinary good, and very well adapted to their several Intentions ; yet it is very plain, he has inserted a Number of others, with long and tedious

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Encomiums on their Virtues and Excellencies, which, upon the strictest Examination, has proceeded more from a fond Opinion he has had of them, than from any real Virtues in them: Besides, that many of them are so costly, that in the Process of some regular Cures, they must exceed the Price of any ordinary Horse.

Neither has he been able to obviate the Objections, which we find have been made to himself, for inserting such vast Numbers of Remedies; for what he alleges concerning the Variety of Constitutions, is very little to the Purpose, such a Medicine of the same Intention need only be made stronger or weaker in the principal Ingredients; or if any Alteration be necessary, that ought to depend upon a Change or Complication of Symptoms; all which should be clearly explained by those who deliver Institutions of Cure. And as for his Chymical Processes, we look upon many of them as unnecessary Implements, which only help to fill up his Book, and shew more of Pomp and Ostentation, than any real Use; especially since there are but few of them which vary much from the common received Forms; and if it was otherwise, they could not easily be comply'd with by any who are unacquainted with the Chymist's Art, or unprovided with the Instruments that are proper to make them.

But if *Solleysell*, who is deservedly reputed the best Author, was even faulty in these Respects, notwithstanding all the Pains he had taken; What can we hope from those of less Learning and Ability, who have only delivered Things at second-hand? Of these, all Nations have produced sufficient Store, whose Precepts have been as much, if not more, followed than Original Authors; but none have been so much abus'd that Way, as ourselves; For altho' we have had the Reputation of improving many Arts beyond what others have done; and tho' that of Horsemanship was
even

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even brought to its greatest Perfection, by the noble Person whom we have already taken Notice of ; yet we have hardly one who has treated of the Diseases of Horses in any tolerable Way. *Blundevil*, who was the first of any great Repute amongst us, is now almost quite forgot. As for *Markham* and *De Grey*, with others of later Date, they were only Copiers from him, as himself was also a Copier and Translator from the *Italians* ; and what these Authors have with so much Assurance taken from the common *Rote*, and added as their own, is, generally speaking, the most insignificant of any Thing they have delivered ; so that it is no Wonder, if the Practice of those be very absurd, who tie themselves up to their Rules.

The Want of proper Helps is certainly a very great Disadvantage, not only to the *Farriers*, but to all those who are interested in Horses ; for tho' they may practise with Certainty enough in some Operations, and in many common Accidents that require only outward Applications, yet they must needs be at a great Loss in most Diseases, where the Mass of Blood is affected ; and therefore, we find in all such Cases, their main Recourse is to Bleeding and Purging ; and whether that be proper or not, they neither know themselves, nor can their Books inform them : And when a Horse gives Signs of inward Sicknes, the Book (which is chiefly made up of a Parcel of insignificant Receipts) furnishes them with a Cordial-drink, compos'd of some Spices, or a few Herbs to be boil'd in Ale or White-wine ; and if one Drench or two does not make a Cure, they are at a great Loss what to do next : Having no other Notion of Medicines, but as if they work'd by a sort of Magick.

That this is the common and ordinary Way of Practice among Horses, every one knows. We cannot, however, but own, there are many Gentlemen, and also some of the ablest *Farriers*, who have not

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confin'd themselves so much to Custom, but have fallen upon better Methods than those generally prescrib'd; and we find several very good Remedies handed from one to another, which are not to be met with in Books; but yet, as most are unacquainted with the Requisites necessary for the right Administration of these Remedies, they often prove as Weapons in unskilful Hands, which may either do Good or Hurt, as they happen to be right or wrong apply'd; and if there be some who know how to apply them better than others, yet while their Methods are not communicated to the Publick, and thereby rendred of general Use, the Art can be but little advanced.

From all which Reasons, and the frequent Complaints of those who are the greatest Sufferers by the Deficiency of this Art, we have been induced to propose this our *New Guide*; wherein we have not only deliver'd an Account of all the Diseases incident to Horses, with the Method of Cure, but also the *Anatomy* of a *Horse*; the Knowledge of which being as necessary to Farriers, as that of the human Body to Physicians and Surgeons; and we are in Hopes it will meet with the more ready Reception, because the Attempts that have been made of this Kind already by *Signior Ruini*, and *Mr. Snape*, late Farrier to King *Charles II.* have both been in some measure rendred fruitless; the first having writ in a Language unknown to us, and at a Time when this Art was in a manner in its Infancy; and the other having never publish'd any Thing professedly of Diseases, (tho' he fully intended it) but only his Volume of *Anatomy*, which, besides that it is very rarely to be met with, is also so large, and incumbred with so many Things foreign to the Purpose, as makes it, in a great measure, unprofitable to those for whom it was principally intended.

And

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And therefore, that we might avoid these Inconveniencies, we have in our Anatomical Part wholly studied the Benefit of such as are unacquainted with the Subject, having describ'd all the Parts of a Horse, with their several Uses, in as short and concise a Manner as possible, and at the same Time omitted nothing that is absolutely material; and we have not only rectified several Mistakes in Mr. *Snape*, but have added many Things from the modern Discoveries, which are not to be met with in that Author, and which are very necessary to the Knowledge of Diseases. Neither need we make any Apology for the hard Appellations of some of the Muscles, other than what Mr. *Snape* has already done, *viz.* That whereas most of them have the same Use with those of the human Body, he therefore thought it prudent to retain the same Names, believing it would be too assuming in him to impose others.

The Figures of the several Parts, are by all own'd so necessary, that we need not say any thing to recommend them; they being constant Helps, not only to those who are Strangers to the Subject, but also to such as are acquainted therewith; and though we are in this Respect chiefly indebted to the Industry of Mr. *Snape*, as he was to *Ruini*, for many of them, yet we doubt not of Approbation in the Choice we have made, as we have not any that are useless, but such as are of most Importance.

As to our Treatise of Diseases, it is partly the Result of some Observations that were made while I attended the Army, and partly of some that have been made since; during which Time, we have carefully taken Notice of all those Things, both in Books and in Practice, that were the chief Hindrances to the Advancement of the Farrier's Art; and what Steps we have taken to put it upon a better Footing, will be judg'd reasonable, by such as have perus'd Mr. *Snape*'s Book, especially those short Digressions,

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sions, where he has accounted for some Diseases that were the least known by Farriers. The same Method Mr. *Snape* has observed in these few, we have carefully followed throughout the whole, which although it may seem somewhat difficult at first View, to those who are unacquainted with the *Animal Oeconomy*; yet as all is founded upon the Make, Frame, and Disposition of a Horse's Body, and is therefore plainly demonstrable to Sense, it will in the End be found more easy than the usual Methods, that have been only built upon Figment and Fancy.

But, that the Reader may the more readily overcome those Difficulties, we have endeavoured to describe all the Diseases in a Way that is the most familiar and intelligible, having ranked those together, that have the nearest Dependence upon each other: and in such a Manner, that the understanding of one, may lead him insensibly into the Knowledge of another: A Method not hitherto observed, or rightly understood, by any of our Authors. We have likewise been more than ordinarily careful, in distinguishing, with respect to Signs and Causes, and in providing for the several Accidents that may happen, than which nothing conduces more to the Cure and Preservation of brute Creatures, who are incapable of declaring their Infirmities; and because many of the Diseases of Horses have a near Affinity with those of the human Body, and as the comparing the one with the other, must needs tend very much to the Advancement of this Art; we have therefore taken Notice of that in many Particulars, so far as the Mechanism of a Horse may occasion the same Symptoms and Accidents; and wherever they differ, we have endeavoured to put it in as clear a Light as possible, and have accordingly accommodated the Method of Cure.

And as the right Administration of proper Remedies is of no less Importance, we have taken particular Care in that respect, having not only, in all Cases,
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inserted such as are known to be of most Efficacy, but also laid down the Precautions necessary in all their several Intentions; and herein we have studied both the Ease and Profit of the Practitioner, by freeing him of those long and tedious Compositions, where-with most Books so much abound, and which are chiefly made up of a Number of useless and insignificant Ingredients: But these Things I have considered in a Treatise apart, concerning the Medicines proper for Horses, which is a Supplement to this, and has met with the Approbation of the best Judges.

As to the Defects and Errors we have already taken Notice of, in the common and ordinary Practice; as also those committed by the Abuse of Tents, the Application of greasy Dressings, and many other Things too tedious to be inserted here, we hope, we need make no Apology for so doing, since it will appear to any one who shall peruse the following Treatise, that our Meaning in this was not to find Fault; but in order to their Amendment. For wherever we have observed any thing in the received Method, or in any Author, supported by Experience, and agreeable to the Principles of Art, we have been so far from rejecting it, that we have rather recommended it to the World by such Explanations, as we judged necessary to render it more intelligible and useful.

All that I think necessary to perfect this Subject, will be contained in a Treatise which will be shortly published, containing the Order and Oeconomy that is necessary in the Diet and Exercise of Horses.

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THE
ANATOMY
OF A
HORSE.

The Introduction.



THE Bodies of all Quadrupeds, as well as Men, are composed of different Parts, which are adapted to their several Functions: Some are solid, as the Bones and Cartilages; others are soft, as the Glands and Muscular Flesh; and some are of a middle Nature, as the Ligaments of the Joints, and Tendons of the Muscles. But whether their particular Structure be loose or solid, or between both, it is very certain that all are made up of small Fibres or Threads. This is so plainly observable in the soft Parts, that it needs no manner of Proof; since every one must have taken notice, in tearing Flesh asunder, that it is compos'd of little Parcels or Bundles, and these Parcels may again be divided into others which are less, and afterwards into single Threads, which are infinitely smaller than a Hair: Nature has also observ'd the same Oeconomy in the Structure of the hard Parts; for when we cut a Bone across, all the Poruli, or little Holes, which form the Interstices of its Fibres, are, in most Parts of it, plainly perceivable; and if it be cut lengthways, their Direction and Course is no less manifest.

But of all the different Substances whereof an Animal Body is composed, that which Anatomists call a Membrane, is, next to a Fibre, the most simple in its Structure,

ture, it being a thin expanded Substance, which has Length and Breadth, without much Thickness; so that it seems only to be made up of single Threads, laid lengthways and across, like a fine Web. We find some of them pretty thick, especially towards their Origin; but others much thinner than the Film of an Egg: The whole Body is wrap'd up in one of these, and every particular Part has a membranous Cover, which preserves it from the Injuries it would be expos'd to, from those Parts which lie next it. Some Parts are involv'd in double Membranes, as the Brain, and Pith of the Back, &c. which are very soft and delicate, and could not be easily preserv'd by a single one.

But besides their Office of covering and defending all Parts of the Body, some of them serve as Bags or Cases, for Food and Excrements; others are form'd into Conduits, for the Blood and animal Juices. But some of these being partly muscular, and partly membranous, they may be properly said to be of a mix'd Nature, as are most of the Muscles, and many other Substances throughout the Body.

The Muscles are made up of fleshy and tendinous Fibres; which kind of Structure is necessary to their Action, they being the Instruments of Motion. Almost all Muscles are fleshy and soft in the Middle, and for that Reason are capable of being contracted and dilated; for if they were otherwise, it would be impossible for any Creature to move: whereas by the Figure they are of, we find 'em ready to answer every Inclination of the Mind, without Pain or Stiffness. The Muscles are of different Figures, some flat, as those on the Rim of the Belly; others more round, as those of the Thighs and Legs; some of which, towards their Insertions, terminate in a strong, nervous, sinewy Substance, called a Tendon.

A Ligament is more compact and firm than a Tendon, but not altogether so hard as a Cartilage. It is that Substance which ties the Joints together; whereof some are round, as those which we observe fastned to the head of a Bone, and the inside of its Socket; others are flat, and cover the Joints like so many pieces of Leather nail'd on, to keep the two Bones from falling asunder, and to preserve an Uniformity in their Motion.

A Cartilage, or Gristle, which we observe more or less at the Ends of most Bones, is harder and less pliable than the Ligaments: These being of a smooth Surface, and moderately

The INTRODUCTION. 3

moderately thick, are a Defence to the Ends of the Bones, which are more hard and brittle; and if they were not thus fortify'd, might therefore be worn and abraded by their Motion.

The Bones are of the most hard and compact Substance of the whole Body; they are without Sense, as are also the Ligaments and Cartilages, otherwise they would be unfit to answer their particular Functions: But, notwithstanding their Insensibility, if any of them happen to be diseas'd, they may cause Pain, and create a great deal of Trouble.

As the Bones are, of all the Parts which compose an animal Body, the most solid, the Glands, or Kernels, are reckon'd among the softest; being curious Bundles of Vessels, which are infinitely small, and laid closely together, in many Circumvolutions and Turnings: From some of these are separated Excrements, and from others Juices, which have their peculiar Uses, as will be shewn hereafter.

The Veins and Arteries, Nerves, and Lymphatick Vessels, are the Conduits and Pipes, through which all the liquid Juices of the Body do pass. The Arteries are Vessels which carry the Blood from the Heart to the Extremities, and the Veins are the Channells which carry back that Portion of it, which is more than sufficient for the Nourishment of the particular Members. The Nerves are of a compact Substance, like so many tough Cords, of a white Colour, and different Sizes, some being pretty large, others infinitely small; and tho' they seem to be solid and imperforate, that is to say, without any visible Bore or Cavity in them, yet it is very certain they carry the animal Spirits from the Brain into all Parts of the Body; and are the Instruments which communicate all Sensations to the Imagination. The Lymphatick Vessels are of a more thin Texture, and carry a clear transparent Liquor, which is also subservient to the Functions of Nature.

In short, all the Parts of the Body, whether those that are hard, or those which are denominated soft Parts, are nourished by Blood, and their peculiar Juices produc'd of Blood: Neither is it improbable, that the whole animal Frame is compos'd of the several Modifications of Veins, Arteries, Nerves, and Lymphatick Vessels.

These Things being premised, for the Benefit of such as are Strangers to the Study of Anatomy; I shall now proceed to handle the Subject particularly, and take every Part as it lies in its proper Order.

C H A P. I.

Of the Parts which invest and cover the whole Body.§. I. *Of the Hair, Scarfskin, Hide, and Flefhy Pannicle.**The Hair.*

IN describing the Parts of a Horfe, the first Thing that presents to our View, is the *Hair*, which may not improperly be called the uppermost Cover of the whole Body. It will be very little to our purpose to spend time about its Production, or how it comes to be of so many different Colours; I shall therefore proceed to observe, that the Hair is both an Ornament and a Defence to all Animals. That which we call his Coat, is not only agreeable to the Eye in a plump young Horfe, but a Defence from the Injuries of Cold and Heat, and the Accidents to which he would be often expos'd, in his feeding among Shrubs and Bushes; and that which grows out to some length on the Footlock, is a no less Defence to that prominent Part, when he travels on stony Ways, or in frosty Weather, when the Roads are crufted, which otherwise would be very much expos'd to Wounds and Bruises. As for the Main, Tail, and Foretop, they add greatly to the Beauty of a Horfe, and are a fuitable Decorement to a Creature of so much Fire and Mettle.

The Cuticula, or Scarfskin.

The first fleshy Tegument, or Cover, is the *Scarfskin*, and is that which rises so easily into a Blister, by being pinch'd or scalded; it is not endu'd with any tender Sensation, but will bear the Touch without Pain; it is produc'd from the Hide, which it involves and covers on all Parts, and has from thence its Nourishment. Its Use is not only to cover the true Skin, and defend it from those painful Sensations to which it would be expos'd, as we daily observe, when it is fretted off; but as it resembles a curious Net-work, and is full of little Holes or Pores, it is thereby suited to give way to the excrementitious Matter which continually exhales from the Body.

The Hide.

The next common Covering is the *Skin*, (properly so call'd) or *Hide*, which lies immediately under the other. It is nourish'd with Veins, Arteries,

teries, &c. and is also porous for the Passage of Sweat, or other perspirable Matter, which is separated from a vast number of little Glands, which lie on the Inside of it; and as the Scarfskin is a Defence to the Hide, so the Hide is a Defence to those other Parts which lie under it.

Underneath the Skin is plac'd the fleshy *Pannicle*, which is muscular, and helps to draw the Skin into Wrinkles, by which means a Horse throws off the Dust, Flies, or other Things that hurt him. It is also nourish'd with its proper Veins and Arteries, &c. and besides its peculiar Uses, it serves, in concert with the Skin, to defend the Body from external Injuries, viz. by keeping it warm in Winter, and preventing a too great Exhalation of the Spirits in hot Weather.

§. II. *Of the Fat and common Membrane of the Muscles.*

Besides these Teguments abovemention'd, there is the *Fat*, and common *Membrane* of the Muscles. The *Fat* which lies between the fleshy Pannicle and the said Membrane, is distinguish'd from that which covers the Caul, by its oiliness, and is said to be generated of the more unctuous Particles of the Blood, working thro' the Vessels, and detain'd there by the closeness of the said Pannicle. It is not one continu'd Covering in Horses, as in Bullocks, and some other Animals, but chiefly fills up the Interstices of the Muscles externally, and is not only a Defence, as the other Teguments are, but serves to make a Horse look plump, smooth, and beautiful. How far it is capable of being again converted into Nourishment, I shall not offer here to determine.

As to the Membrane of the Muscles, which is the innermost of all the common Teguments, it is said to take its Origin from the Back; and spreading itself all over the Body, is knit to their proper Coats by a great number of small Fibres, yet not so closely as to hinder their Action: It is in a Horse considerably thick, and serves to strengthen and confirm all the Muscles in their proper Situation, and to be a *Capsula*, or Case, to defend them from Injuries.

The fleshy Pannicle.

The Fat.

The common Membrane of the Muscles.

C H A P. II.

Of the lower Belly.§. I. *Of its proper Investiture and Teguments.*

BY the lower Belly, is to be understood all that Cavity which is below the Midriff, and is encompassed by the Short-ribs, the Point of the Breast-bone, Loins, Hanch-bones, and Share-bones, and is fill'd with Guts, and other Entrails.

The proper Teguments of the lower Belly, are the Muscles, and the Membrane which lies under them, call'd the *Peritonæum*.

*Five Pair of
Muscles belong
to the lower
Belly.*

The Muscles are of different Shapes and Figures, according to their several Uses. These on the lower Belly are divided into five Pair; the uppermost are called the *oblique descending* Muscles, and derive their

Origin from the Sides of the Breast-bone, the Points of some of the lowermost Ribs, where they resemble the Teeth of a Saw; from the Tips of the Cross-processes of the Joinings of the Rack-bone in the Loins, and run sloping downwards into the white Line, which is only a tendinous Substance, form'd by the Endings of such of those Muscles as meet and are determin'd in it; and reaches from the Point of the Sword-like Gristle of the Breast-bone, as low as the Share-bone, dividing the lower Belly in the middle. These two Muscles have their Insertion from below the Navel downwards, to the End of that Line.

*The oblique
descending
Pair.*

The next are the *oblique ascending* Pair; they rise from the upper Part of the Hanch-bone, and from the Processes of the *Vertebrae* of the Loins and *Os sacrum*; and taking a contrary Course to those above describ'd, they are inserted partly on the Ends of the Short-ribs, and partly on the white Line, from the Point of the Breast-bone down to the Navel. Their Action is different from the former; for as those draw the lower Part of the Belly sideways, towards the Breast, from whence they arise, so these draw down the Chest somewhat aslant towards the Loins.

*The Streight
Pair.*

The third Pair are call'd the *Recti*, or streight Muscles; because their Fibres run in

a streight Line from their Origin, at the Sides of the above-mention'd Gristle, and the Ends of the Bastard-ribs to the Share-bone, where they are inserted. There are in these several tendinous Interstices, which are the Cause why some Anatomists have divided them into divers Muscles. They shorten the Belly, by drawing the Breast and Share-bone towards each other.

The fourth Pair are call'd the *Pyrami-* *The Pyramidal*
dal, from the Resemblance they bear to a *Pair.*

Pyramid, being broad at Bottom, and growing gradually narrower towards the Top: They seem to be deriv'd from the streight Muscles, and are assisting to them in contracting the Belly.

The last are the *Transverse* or Cross *The Transverse*
Muscles, which have their Origin from the *Pair.*
lowermost Bastard-ribs on each Side, from the transverse Processes of the Joints, or *Vertebrae* of the Loins and Haunch bones, from whence, running across the Belly, they are inserted in the white Line.

Besides that these Muscles are a Cover and Support to the lower Belly; they have not only their particular Offices, but act in concert with each other, and give their mutual Assistance in compressing the Guts, to the Expulsion of their Excrements.

Underneath the Muscles lies the *Perito-* *The Perito-*
neum, which is the next proper Tegument *neum.*
of the Guts. It is a double Membrane, of an oval Figure, and is thought to derive its Origin from that which involves the Pith of the Loins; its Inside is very smooth, and lin'd with a sort of *Mucus*, which proceeds from the Guts, over which it is spread. From this Membrane, all the lower Parts of the Belly are furnished either with their common, or proper Membranes. It has Ligaments, whereby it helps to bind all the Guts in their proper Situation, that no violent Motion may display them; it also affords a stronger Ligament to the Liver, and is a great Support to a vast Number of small Vessels, which would either be broke, or twisted in so long a Course, were they not preserv'd within its Duplicature.

§. II. *Of the Caul.*

The *Caul* seems to be a proper Invelop- *The Caul.*
ment or Cover to the Guts, being in most

Animals spread all over them; tho' in a Horse it is often seen to lie forward in Wrinkles, which may be occasion'd by his violent Labour. It is in figure like a Purse-Net, being double, and open at top, but knit together towards the bottom: It adheres to the lower Part of the Stomach, and likewise to the Spleen, and hollow Side of the Liver. By its underside it is fasten'd to that Part of the Gut *Colon*, which lies under the Stomach lengthways, and likewise to the Sweetbread, and beginning of the small Guts.

Its Use.

As the Caul has plenty of Fat, it not only serves to keep the bottom of the Stomach, and most of the Guts moist, but also to cherish them with its Warmth: And besides this, it has likewise a further Use, *viz.* to sustain a vast number of Branches of Vessels which pass between its Membranes to the Stomach, Spleen, and Guts, &c.

§. III. *Of the Gullet, Stomach, Guts, and Mesentery.*

The Gullet.

Tho' all the *Gullet* be not contain'd in the lower Belly, yet as it is an Appendage to the Stomach, and the Funnel thro' which every thing passes into it; a Description of it cannot be so proper any where else, as in this Place.

It is hollow and round, beginning at the Root of the Tongue, behind the Head of the Windpipe, under which it passeth, turning a little to the Right, to give way to the great Artery; afterwards inclining to the Left, it passes thro' the Midriff, and is inserted into the Stomach towards its left Side.

It consists of three Coats, or Cases; the outermost seems to come from the *Pleura*, &c. the middlemost is muscular and thick, consisting of two Ranks of fleshy Fibres, ascending and descending obliquely cross on another: The innermost is membranous, with straight Fibres only; its Veins communicate with those on the Breast and Neck,

Its Vessels.

as do also its Arteries. At its beginning it has two large Glands or Kernels, which separate a Moisture to keep its inside glib, to facilitate the Passage of the Blood, &c. Where it is inserted into the Stomach, it is composed of a pretty thick Substance made up of circular and fleshy Fibres, whereby it contracts and dilates itself, to give way to the Aliment, or shut up the Stomach at pleasure. This is call'd the left, or upper

Orifice

Orifice of the Stomach; and that whereby it discharges itself into the *Duodenum*, its right or lower Orifice.

The *Stomach* is round, and somewhat long, resembling a Bagpipe, but more capacious on the left Side than the right; its Magnitude is, generally speaking, more or less, according to the size of the Horse. It is also composed of three Cases, the outermost of which seems to rise from the *Peritonæum*; the second is muscular and fleshy; and the last a Continuation of the innermost Coat of the Gullet. *The Stomach.*

It has Arteries from the *Celiacal Branch* of the *Aorta*, and Veins from the *Splenick*, and the *Gastricks*, a Vein common to its left Side and the Caul, and one common to the Caul and the right Side from the *Mesentericks*; and lastly, the *Pyloria*, which comes from the *Porta*. *Its Vessels.*

It has Branches from the Recurrent Nerves, which being exceeding numerous, are the Occasions of its being so very susceptible of Hunger, and all other Sensations. *Its Nerves.*

The Use of the Stomach is to concoct and digest the Aliment, so as to render it fit for Nourishment; and this is perform'd chiefly by its muscular Motion, which is manifest from its Structure, and the Power it has of contracting itself into those *Rugæ*, which we discover in it when it is empty. *Its Use.*

After the Stomach come the *Guts*, which, according to Mr. *Snape's* Computation, are in number six, to wit, the small Gut, the *Cæcum* or blind Gut, the three *Colons*, and the streight Gut. *The Guts.*

The *small Gut* (which in a Man is divided into three, to wit, the *Duodenum*, *Jejunum*, and *Ilion*, from its several Circumvolutions) is in a Horse reckon'd to be about 26 Yards in length; and is in all its Turnings fasten'd to the Mesentery. The Stomach empties its Aliment into this Gut, which is furnished with an infinite number of milky Vessels, call'd *Lacteals*, that receive the finer Portion of the Aliment, which being convey'd by these little Conduits across the *Mesentery*, to one common Receptacle, ascend upwards along the Spine, thro' a pretty large Chanel, which is call'd the *Thorack Duct*; and from thence into the Veins, and is incorporated with the Blood. The coarser Part of the Food, by a peristaltick, or vermicular Motion, which is common to all the *the*

the Guts, falls downwards, and is discharg'd in Excrement. There are in this Gut, besides the Vessels it has in common with the rest, two Ducts which open into it; the one from the Liver, and the other from the Sweetbread; each of which sends in a Juice, that contributes to the Refinement of the Aliment, &c.

The Cæcum or blind Gut. The next is the *Blind Gut*, which has but one Passage for the Excrements, so that they are forced to return back the same way they went in.

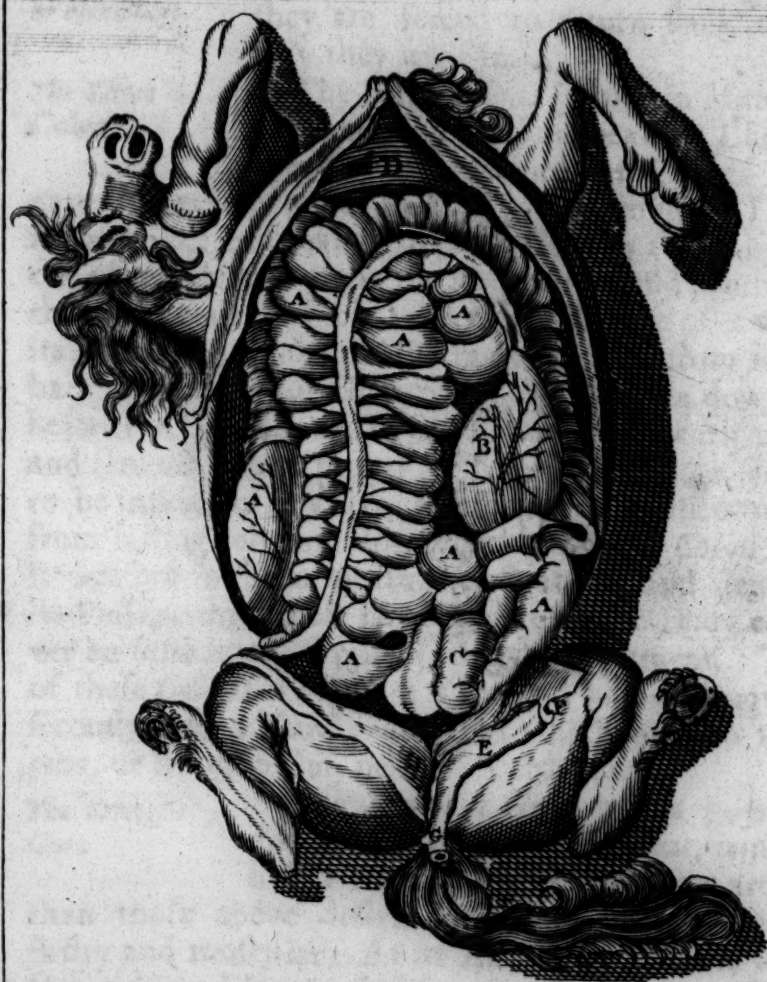
The Three Colons. The three *Colons* (which in Man are but one continued Gut) are next the *Blind Gut*; they are divided into three Guts by two narrow Necks of about half a Yard in length. This Gut is drawn up into many Purses or Cells by two Ligaments, one of which runs along the upper Side, and another along the under Side; which, with the Assistance of a Valve at its Beginning, hinder the Excrements, either from returning back into the small Guts, or falling too soon downwards, before the Chyle or milky Substance is sufficiently prepar'd, and sent off into its proper Vessels. The *Cæcum* seems also to be instead of a Valve, to hinder the Aliment or Chyle from falling too soon downwards into the *Colon*; for if it was not in some measure obstructed, and detained in its Passage thro' these large Conduits, the Body could never be sufficiently supply'd with Nourishment. The first of these *Colons* is about a Yard and half in length; the second about a Yard; and that which joins to the *Rectum*, or streight Gut, near six Yards long.

The Streight Gut. The *Streight Gut*, which goes streight downwards to the Fundament, is not above half a Yard in length; its Coats are thicker than those above describ'd, its middlemost being very fleshy and muscular: At its Extremity there is a Sphincter, which dilates itself for the Evacuation of the Excrements, and keeps it contracted, or shut up at all other Times.

There is on the Inside of the whole Guts a *Mucus*, or slimy Matter, which preserves them from being hurt either by the Hardness of the Excrements, or the Pungency of any sharp corrosive Humours; for they being, as most other membranous Substances, full of Branches of Nerves, would be in perpetual Pain, had not Nature taken a special Care of them.

The





The *Mesentery*, which, in the next Place, *The Mesentery.* comes properly to be described, is so called from its Situation in the Middle of the Guts. Its Rise is from the third Rack-bone of the Loins, and is composed of three Membranes, the middlemost being very full of Kernels or Glands, which, when they happen to be overmuch dilated, obstruct the Passage of the Chyle, which runs across its Membranes; and the Body being thereby depriv'd of its Nourishment, becomes lean and emaciate, and at length falls into irrecoverable Diseases.

At its Rise it is gathered together in a vast many Plaits or Folds, which being open on that Part of it to which the Guts adhere, makes them lie in those Circumvolutions and Turnings, in which we always observe them: And this seems absolutely necessary; because if they were not tied in such a manner, but let loose, the Excrements would either pass too quickly thro' them, or else be wholly obstructed, by reason they would be apt to twist and entangle one with another.

In a Horse, the Mesentery is usually above a quarter of a Yard in Breadth; and besides, in the milky Vessels, which are sustain'd by it, it has abundance of Lymphatics, which serve to dilute the Chyle. Its Veins are Branches of the *Porta*; and its Arteries the *Meseraick* or *Mesenterick*: As to its Use, it is sufficiently demonstrable from what has been already said concerning it, and the Guts. *Its Vessels.*

TABLE I. represents the Guts, as they appear after the Caul is taken away.

AAAA. *Sheweth the Gut Colon, with all its Circumvolutions and Folds, with the small Necks, which divide it into three Parts; as also the Space which it takes up in the lower Belly.*

B. *The Cæcum or Blind Gut.*

C. *The Rectum or Streight Gut.*

D. *Part of the Diaphragm, or Midriff.*

E. *The Yard.*

F. *The Glans or Nut.*

G. *The Fundament with its Sphincter.*

§. IV. *Of the Spleen, Pancreas, and Liver, with the Porus Biliarius, or Gall-pipe.**The Spleen.*

The *Spleen*, or *Milt*, is a soft, spongy Substance of a black livid Complexion, a triangular Shape, but somewhat longish, situated on the left Side, opposite to the Liver; it adheres both to the Midriff and Stomach: It is covered with a Membrane from the *Peritonæum*, which, because of its soft spongy Substance, is considerably thick. Its Veins are a Branch of the *Porta*: Its Arteries spring from the left *Cæliack* Branch, and its Nerves from the left Intercostal. It has also *Lymphatick* Vessels, which glide along the Caul to the Receptacle of the Chyle. There is no Part of the Body wherein Anatomists have differed more, than concerning the Use of the Spleen: To pass by a great many various Opinions about it, it has been thought to give an Asperity and Sourishness to the Blood which comes into it; and as that Blood is conveyed from thence to the Liver, it was believ'd to be in order to ingender, or to keep up a moderate Ferment in it; but because several Animals have liv'd after it has been cut out, and been more brisk than when they had it, it is not therefore improbable, but it has some other Use not yet known; especially since the modern Discoveries allow of no such Ferment. It is however certain, that it serves to cherish and support the left Side of the Stomach, as the Liver does the right, to further Digestion.

The Sweetbread.

The *Sweetbread* or *Pancreas*, so called because it is altogether fleshy, is situated under the back Part of the Stomach, and lies cross the Belly. It is a white and soft glandular Substance, stored plentifully with single Kernels over its Surface, which

Its Vessels.

are somewhat prominent, and of a reddish Colour. It has its Cover also from the *Peritonæum*. Its Arteries spring from the *Cæliacal*, and its Nerves from the Intercostals; its reflux Blood is sent into the Liver, as that of the Spleen: Besides, it has a Passage into the first Gut a little below the Stomach, which is call'd the *Pancreatick Duct*. The Liquor which that Duct discharges, is believed, in conjunction with the Gall, to sweeten the Chyle, to free it from all manner of Impurities. This Liquor seems chiefly to be derived from the little Glands which are on its outside, there being a great many little Pipes

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Pipes detach'd from them, thro' all Parts of it, to the abovementioned Duct. As for the further Uses of the Sweetbread, I shall only take *Its Use.* notice, that as it lies across under the lower Part of the Stomach, it not only contributes to its Warmth, but may help to keep it somewhat elevated; by which means its muscular Action is not hindred, as it might probably be when full, if its Weight was not supported.

The Antients believ'd the *Liver* to be the *The Liver.* chief Instrument of Sanguification; neither could they be much blamed for this Opinion, it being agreeable to the first Discoveries made in Anatomy.

Its Substance is fleshy, somewhat resembling congealed Blood: It is situated on the upper Part of the lower Belly, on the right Side, under the short Ribs. The Liver of a Horse has four Lobes, which grasp the Stomach, and keep it warm. It is tied by three Ligaments; the chief of which is called its *Suspensory*, and is a Production of the *Peritoneum*; it is very strong and nervous, arising from the Midriff towards its right Side, and is inserted in the thickest Part thereof, where its uppermost Cover, expanding itself, forms the proper Tegument of the Liver; another Ligament fixed to the Point of the Breast-bone, in conjunction with the first, keeps it suspended in such manner, that it can neither fall downwards nor sideways. The *Umbilical* Vein, by which the *Fœtus* is nourish'd, becomes its third Ligament, which is very necessary in a Horse, because it preserves the Liver, in galloping or leaping, from falling forwards, and bearing too hard upon the Midriff.

Its Veins are the principal Branches of the *Cava*, or hollow Vein, whose other *Its Vessels.* Branches receive all the Blood which is brought in by the *Porta*, forming the hollow Vein abovemention'd, by a Combination of all their Roots into one great Trunk. The *Porta* (so called from its Office) is form'd from the Branches which have been already observ'd to come from the Spleen, Sweetbread, and Guts, &c. Its Arteries are from the *Celiac*, and its Nerves from the Intercostals, &c. Its lymphatick Vessels take the same Course, as those of the Spleen and Pancreas.

Though a Horse has no *Gall Bladder*, yet he wants not sufficient store of *The Porus Biliarius, or Gall Bladder.* *Gall*, which is separated by its proper Vessels, and convey'd directly into the first Gut, about
ten

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ten or twelve Inches below the undermost Orifice of the Stomach. This Liquor is separated from the Blood, which is imported to the Liver from the Spleen, &c. and serves, in conjunction with the *Pancreatick* Juice, for the Purposes abovemention'd.

Its Use. The Liver is of great Use, as it is a constant Receptacle for all the Blood which is return'd from the Spleen, Pancreas, and Guts; where it, no doubt, undergoes such Changes and Alterations, by the Separation of the Gall, as are necessary, before it goes into the Heart, to fit it for a fresh Progress into all Parts of the Body. It is moreover exceeding healthful to the Stomach, as it not only cherisheth it by its Warmth, but also keeps it steady, and preserves it from any counter Action, that might mar its muscular Motion, and hinder Digestion.

§. V. *Of the Kidneys, Ureters, and Bladder.*

The Kidneys. The *Kidneys* are seated in the Loins, behind the Stomach and Guts; the Right under the Liver, and the Left under the Spleen. They are seldom alike: In a Horse, that on the right Side is somewhat triangular; and the other is much broader below than at top, not unlike the figure of an Egg.

Their Vessels. They are nourish'd by their own proper Vessels, which are call'd the *Emulgents*; the Artery springing directly from the *Aorta*, and the Vein having as near a Communication with the *Cava*: Their Nerves spring from the same Branch of the *Inter-costal* that goes to the Stomach, and that is the Reason why the least Disorder in the Kidneys, Ureters, or Bladder, causes such sudden Sicknefs.

The Substance of the Kidneys is chiefly *glandular*, having on the Outside, a vast number of little Kernels, which separate the Stale from the Blood, and from them proceed an equal number of little Pipes, or Conduits, which run from the Circumference towards the Center, like the Spokes of a Wheel: By these the Urine is convey'd into other Glands, which are call'd the *Carunculae papillares*, from the Resemblance they bear to Teats, which, in a Horse, are as big as small Field Beans; and when it has undergone a further Change in these Glands, it is empty'd into a Cavity call'd the *Pelvis*, or Bason, which is in the Center of each Kidney. This being a membranous Substance, is no other

CHAP. II. *The Anatomy of a HORSE.* 15

other than an Expansion of the *Ureters*, which are two *Canulas*, or Pipes, from which the Urine passes from their respective Kidneys to the Bladder.

The *Ureters* keep not a streight Course from the Kidneys, but in form of the Letter *S*, they enter into the Back and lower Part of the Bladder, where passing about an Inch between its Membranes, to prevent the return of the Urine back the same way, they are inserted near its Sphincter, or Neck. *The Ureters.*

The *Bladder* is seated in the lower Part of the Belly, within that Circumference which is made by the Loins, Hip-bones, and Share-bone. It is of an irregular Shape, somewhat resembling a Pear, composed, as the Stomach and Guts, of a treble Coat or Skin, the outermost from the *Peritoneum*, the middlemost muscular, the innermost very thin, and of an exquisite Sense; having Nerves both from the *Intercostals*, and the *Vertebrae* of the Loins. Its Veins and Arteries are Branches of the *Hypogastricks*. The Bladder is perforated, or bored, not only where the *Ureters* enter into it, but also in its Neck, to give passage to the Urine which runs along the *Urethra* or Piss-pipe, in order to its Discharge out of the Body: Its Neck is compos'd of muscular and fleshy Fibres, which form a Sphincter Muscle, such as has been describ'd belonging to the Fundament, which opens and shuts at pleasure. *The Bladder.*

As for the *Capsulae Atrabiliares*, which some Persons have called Deputy-kidneys, because they are situated near the true Kidneys, and somewhat resemble them, I shall not spend the Reader's Time about them, since Anatomists have not as yet clearly determin'd their Use. *The Capsulae Atrabiliares, or Deputy-kidneys.*

§. VI. *Of the Parts of Generation in a Horse and Mare.*

The *Yard* being the most external of all the Parts administering to Generation, I shall therefore begin with it. Its outward Cover, or Sheath, is nothing else but a Production of the Scarfskin, Hide, and fleshy Pannicle; which are tied by an Appendage, call'd the *Freenum*, or Bridle, which runs along the underfide, in a narrow Slip, almost to the Root of the Yard; so that the Sheath folds back in several Wrinkles, and gives full Liberty to the Yard, as often as it is extended and drawn. *The Yard.*

The

Its Substance.

The internal Substance of the Yard consists of two nervous Bodies, which, as in Man, make up the greatest Part of its Bulk. These two Bodies are very spongy and open in a Horse, and when dried, are extremely light; but in a Bullock, and some other Animals, they are more compact and solid. They are composed of a vast many Branches of Veins, Arteries, and Nerves, which are variously interwoven one with another. On the underside, between these two cavernous Bodies, runs the *Urethra*, or Piss-pipe, from the Sphincter of the Bladder, to the Extremity of the Glans or Nut, which affords a Passage both for the Urine and Seed.

The Glans is an Appendage to the Yard; it is of a round Figure, but very thin, in proportion to what it is in Man; it is not so cavernous as the Yard, but of a quicker Sense, being the chief Seat of Pleasure in Copulation.

Its Muscles.

The Yard has two Muscles on each Side towards its Root: The first Pair spring from the external Proofs or Knob of the Hip-bone, and help the Yard in Erection: the other two rise from the Fundament, and are called the *Dilators*, because they serve to open and widen it for the freer Passage of the Seed and Urine. Its Veins and Arteries spring

Its Vessels.

from the *Hypogastricks*, and its Nerves from the lower *Vertebral*.

The Stones.

Next to the Yard, the *Testes*, or Stones, properly take place, because in them the Seed is prepared: They are two glandular Bodies of an oval figure, situated under the Root of the Yard, hanging in a *Scrotum*, or Bag; which is no other than a Production or Continuation of the Sheath above described. The Stones have each a Branch from the *Aorta*, or great Artery, which brings the Blood directly from thence, not only for their Nourishment, but for Seed.

Their Vessels.

Their Veins are Branches of the *Cava*, some of which open into the great Trunk thereof, very near the Emulgents, but not in the Emulgents, as in Men. These are called the *Præparatoria*, or preparing Vessels, from which the upper side of the Stones are curiously clasped and twined, like the Tendrils of Vines; and growing narrower, and uniting more together as they advance towards the Belly, they are denominated by several Names, as the Pyramidal Body, and *Plexus Pampiniformis*, &c. On the backside of each Stone there is a longish Bo-

dy

is somewhat white and round, called the *Parastatæ* or *Epididimæ*; from each of these runs a pretty large Vessel, which empties itself into the Seed-bladder, situated on each side the Root of the Yard, and on the inside of the Share; these are called the *Deferentia*, or the Vessels which carry back the Seed: Both the *Deferentia* and the Blood-vessels, above described, are inclosed in a *Capsula* or Sheath, which is a Production of the *Peritonæum*, proceeding from the lower Belly on each side, which not only serves for this use, but forms the outermost Cover of the Stones, and is that which Anatomists call the *Tunica Vaginalis*.

Each Stone has a *Cremaster* or suspensory Muscle, to draw them up in time of *Their Muscles.* Copulation, which arising from the Ligament of the Share-bone, expands itself all round the inside of the *Tunica Vaginalis*; and, according to Mr. *Snape*, forms their second Coat. Besides these, the Stones have an innermost Coat or Cover, which is thick and nervous, and not only contributes to their Warmth, but is a great Defence to their true Substance, which consists of a very fine Clue of Vessels, made up of Veins, Arteries, and Nerves, and form'd out of those above describ'd; so that the Liquor passing thro' so many Circumvolutions and Turnings, in Vessels which are infinitely small, it is thereby so often strained and refined, till it becomes fit to enter into the *Parastatæ*; where probably undergoing some further degrees of Refinement, it is compleatly form'd into Seed.

There are several glandular Bodies *The Prostrates.* situated at the Root of the Yard, immediately before the Seed-bladders, and are therefore called *Prostrates*. These separate a clear slimy Matter, which being forced out in time of Copulation, no doubt preserves the Urinary Passage from the Pungency of the more spirituous Parts of the Seed; and may at other times, in conjunction with the *Mucus* which is in that Passage, defend it from the Heat and Sharpness of Urine, Sand, or other gritty Matter sent into it from the Bladder.

Having given this short Account of the Genitals of a Horse, we come in the next Place to those of a Mare, which differ from the other, not only as they are all contained within the Cavity of the Belly, but likewise as to their Figure and Use.

A Mare has two *Testes* or Stones, as well *The Parts of a Mare.* as the Horse, which lie backwards on each

Side under the Loins; and these are nourished with Arteries which spring from the *Aorta*, and are more in number than those of a Horse. The abovementioned Author mentions but one Vein from the *Cava*; which is contrary to his own Figure of a Mare's Genitals, where there are

The Ovaria. several; but this he seems to have borrowed from the Anatomy of a Woman, having probably never examin'd those Parts of a Mare with that Industry the Author has done, from whom he has taken this Figure.

Wherein they differ from the Stones of a Horse.

The Stones of a Mare are not as those of the Horse, oval and round, but flat like a Garden-bean: They have their common and proper Teguments, and in their inner Substance several *Ovaria* or Egg-beds, which are Receptacles for the Male-Seed.

The Womb.

Somewhat forward, and below these *Ovaria*, is seated the Womb or *Matrix*, between the Neck of the Bladder and the straight Gut, where it is firmly tied in its Place by two Pair of Ligaments; it is differently shaped from that of a Woman, being

Its Horns and Tubes.

divided by its *Cornua* or Horns, whose hollow round Insertion seems to compose its *Fundus* or Bottom. Out of these Horns arise the *Tubæ* or Trumpets, so called by *Fallopious*. At their Exit they are very small, but in their Progress grow wider and somewhat contorted. Towards their Extremity they are again contracted into a small Orifice or Mouth, with a jagged Membrane all round their Circumference, not unlike the Husk of a Rose. The Use of these Tubes, is to convey the Seed from the Womb to the *Ovaria*, where the Impregnation first begins; and also to afford it a Passage back again to the same Place.

Its Substance.

The Substance of the Womb is fleshy, inclosed within two Membranes, which are nervous and sensible: It has a great number of Blood-vessels from the *Hypogastricks*, which, after Conception, enlarge it like a Sponge, and fill it with Blood, not only that it may become a proper Bed for the *Fætus* to lie in, but also to supply it with sufficient Nourishment.

The Sheath.

The *Vagina* or Sheath, is an Appendage to the Womb, being only a Production of its Membranes; it is that which forms the long Passage reaching from the *Pudenda* or Privities. On its inside are several

Rugæ

Rugæ and Caruncles; the Use of which are to stimulate the Horse to a vigorous Discharge of his Seed. Besides these, there are the *Nymphæ* just within the *Labia*, and the *Clitoris* more backward, which not only serve to the same Purpose, but to augment the Pleasures of the Mare; the *Clitoris* being a spongy Body, answering to the Glans or Extremity of the Horse's Yard, and endued with the same Sensation. The inside of that Passage has a thin *Mucus* from its Glands, which is not only a Defence to it, but likewise serves to facilitate the Passage of the Horse's Yard; which being an extreme sensible Part, would otherwise be hurt by its unevenness. About an Inch within the Lips, on the upper side, there is a small Passage by which the Urine is discharged from the Bladder into the Extremity of the Sheath: And as the Bladder has its Sphincter to shut up its Neck when the Urine is drained from it, so the *Nymphæ* do the same Office in the *Vagina*: And when they are contracted, or rather closed together, from the *Fissure*, or Chink, they are also of further use to prevent Flies, Dirt, or any extraneous Matter from getting within it.

The *Udder* is another Part peculiar to the Mare, being that from whence the Foal receives its first Nourishment after its Birth. Its Substance is partly fat, and partly glandular: By its Glands the Milk is separated from the Blood, which is brought into it by the *Hypogastrick* Arteries, and carried along in little Pipes to two Glands, which are pretty large, seated at the Root of each Pap, where undergoing its last Refinement, it is discharged first into its proper Vesicles, and then into the Paps which convey it to the Foal.

The Udder.

Tho' the Udder of a Mare seems to be one undivided Substance, yet, as in all other Animals, it is truly separated; the Vessels of one Pap having no immediate Communication with the Vessels of the other. So that if a Mare should have one Side of her Udder hurt, the Foal may still be nourished by the other.

It may, perhaps, be expected that I should put an End to this Chapter, by giving some Account of Conception, and the Manner of the Foal's being nourished in the Womb; and likewise that I should take some notice of the Male-Seed, which by most modern Anatomists is believed to be full of *Animalcula*, or little moving Creatures, which, they say, by the help of a Microscope, may be plainly discerned in that Liquor. But as these Things would not only be too tedious,

dious, but of more Curiosity than Use to the Farrier, for whose Service this is principally intended : And as Anatomists differ among themselves in many Circumstances concerning them ; and moreover as it would, besides a bare Knowledge of the Structure of the Parts, require in the Reader a competent Skill in Natural Knowledge, to understand those Disputes fully : I shall not therefore detain him about them, but proceed to a Description of the middle Venter or Chest, being that which properly comes next under Consideration.

TABLE II. Represents the Stomach, and several other Parts contained in the lower Belly.

Fig. 1. Sheweth the Stomach taken out of the Body.

- A. *The Gullet.*
- B. *The upper Orifice of the Stomach.*
- CC. *Two Nerves dispersed through the upper Part of the Stomach.*
- D. *The Pylorus, or lower Orifice of the Stomach.*
- E. *Its Entrance into the small Gut.*
- F. *The Entrance of the Porus Biliarius, or Gall-passage, into the beginning of the small Gut.*
- G. *The Entrance of the Pancreatick Duct into the same Gut.*
- H. *Part of the first Gut.*
- I. *The outside of the Stomach, with the Ramifications or Branches of the Blood-vessels upon it.*
- KK. *The outermost Coat of the Stomach turn'd back.*
- L. *Its middle Coat, with the Ramifications of the Nerves upon it.*
- MMM. *The Gastrick Vessels inserted into the bottom of the Stomach.*

Fig. 2. Sheweth the Stomach turned inside out.

- A. *The left Orifice, or Mouth of the Stomach.*
- B. *The right, or lower Orifice.*
- C. *The Wrinkles and Folds of its muscular Coat.*

Fig. 3. Shews the hollow Side of the Liver.

- AAAA. *Its four Lobes.*
- BB. *The Vena Porta, with its Egress out of the hollow Side of the Liver, together with a Nerve of the sixth Pair creeping over it.*
- C. *The Trunk of the Vena Cava, or hollow Vein.*
- D. *The*

TAB. II.

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Fig. 1.



Fig. 1.



Fig. 4.



Fig. 5.



Fig. 3.



Fig. 6.



Fig. 7.

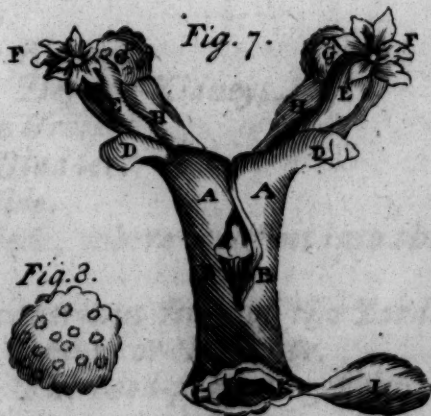


Fig. 3.





- D. *The Porus Biliarius or Gall-passage.*
 E. *A Branch of the Cæliac Artery.*

Fig. 4. Represents the Spleen, with its Vessels.

- A. *The concave, or hollow Side of the Spleen.*
 B. *The Splenick Vein.*
 CCC. *The Splenick Artery.*

Fig. 5. Shews the *Pancreas*, or Sweatbread, freed from its Membrane and part of its Substance, the better to shew the Course of its Vessels.

- AAA. *The Body of the Pancreas dissected.*
 BB. *The Pancreatick Duct.*
 C. *The Orifice of the said Passage into the first Gut.*
 D. *An Artery which is dispersed through its Substance.*
 E. *A vein which accompanies the said Artery.*
 F. *A Branch of the Intercostal Nerves.*

Fig. 6. Shews the Kidneys, Ureters, and Bladders, with the Parts of Generation in a Horse.

- A. *The descending Trunk of the hollow Vein.*
 B. *The descending Trunk of the great Artery.*
 CC. *The Emulgent Veins arising out of the hollow Vein.*
 DD. *The Emulgent Arteries springing from the great Artery.*
 EE. *The Kidneys.*
 FF. *The Deputy-Kidneys.*
 GG. *The Ureters.*
 H. *The Bladder.*
 I. *Its inside.*
 K. *Its Neck, where it opens into the Urethra or Piss-pipe.*
 L. *The cavernous Body of the Tard.*
 M. *The Urethra or Piss-pipe.*
 NNNN. *The Seed-preparing Veins commonly so called.*
 OO. *The preparing Arteries.*
 PP. *The Pyramidal Bodies, or Corpora Varicosa.*
 Q. *The right Testicle, with its innermost Coat.*
 R. *The left divested of its Coats.*
 S. *The Epididimis of the left Testicle.*
 TT. *The Deferent Vessels.*
 UU. *The Seed-bladders.*
 XX. *The Prostrates.*

Fig. 7. Shews the Womb of a Mare, with its Horns and Tubes, &c.

- AA. *The Bottom of the Womb.*
- BB. *The Vagina or Sheath.*
- C. *The Sheath cut open to shew the Clitoris.*
- DD. *The Cornua or Horns of the Womb.*
- EE. *The Tubæ or Trumpets.*
- FF. *Their Fimbria or jagged Orifices.*
- GG. *The Ovaria or Stones of a Mare.*
- HH. *The broad Ligaments.*
- I. *The Bladder.*
- K. *Its Insertion into the Sheath near its Orifice.*
- L. *The outward Orifice of the Sheath.*

Fig. 8. Represents one of the *Ovaria* or Testicles taken off, and cut thro' the middle, to shew the Eggs more plain.

CHAP. III.

Of the middle Venter, or Chest.

§. I. *Of its proper containing Parts.*

The Chest.

BY the *Chest*, is to be understood all that Cavity which is circumscribed above by the *Collar-bones*, and below by the *Midriff*; before by the *Breast-bone*, behind and on both sides by the *Back-bone* and *Ribs*.

Its containing Parts.

Its containing Parts are the Muscles, the Bones, the *Pleura* and *Mediastinum*.

The first Thing that appears after the common Teguments are remov'd, being the Muscles, I shall therefore begin with them, and at the same time only take notice of the *Intercostals*, leaving the rest to another Opportunity.

The Intercostal Muscles.

The *Intercostals* compose all the Flesh that we observe to fill up the Spaces between the *Ribs*: They are in Number sixty-four, to wit, thirty-two on each side; and are distinguish'd by the *External* and *Internal*, or the *Uppermost* and *Lowermost*.

The

The External take their Rise from the lower Part of the upper Ribs, and end in the upper Part of the lower; and the Internal, from the upper Part of the lower Ribs, ending in the lower Part of the upper: By which means they not only differ in their Origins and Insertions, but also in the Course of their Fibres, which run directly across one another in the form of the Letter X; so that their Action is also contrary: The External extending the Chest, by raising the Ribs, and drawing them backwards, help to make room for the Air in Inspiration, or taking in the Breath; whereas the Internal contract the Breast, by drawing the Ribs downwards towards the Breast-bone, for Expiration or Expulsion of the Air.

Next the Muscles, on the inside of the Ribs, *The Pleura.* we observe the *Pleura*. It is a double Membrane, which springs from the inside of the Spine; and is believ'd by some to take its Origin from the Coats of the Nerves. It is perforated in several Places for the Ingress and Regress of the Vessels, which go from the Heart to the Head, and the Veins which return from thence; as also for such as go downwards to the lower Belly and Extremities, and those which return from thence to the Heart.

Its Veins are from the *Vena sine pari*, and upper *Intercostals*; its Arteries from *Its Vessels.* the upper *Intercostal*, and its Nerves from between the *Vertebrae* of the Back.

As the *Peritonæum* furnishes proper Teguments for all the *Viscera* in the lower Belly, so this performs the same Office to all the Parts contain'd in the Chest, which it involves on all sides. It is likewise a Defence to the *Intercostal* Vessels, which run between its Membranes, preserving them from being grated and hurt by the Ribs. *Its Use.*

The *Diaphragma* or Midriff, which divides the Chest from the lower Belly, comes next in Order. It is a thin Substance, but muscular and fleshy, arising, according to some, from its Circumference; and according to others, from the fleshy Productions, which spring from the *Vertebrae* of the Loins. Its Middle is nervous, and its two Sides fleshy. The Direction of its Fibres are from its Back and innermost Part of nervous Body, branching out on each side to its Circumference towards the Ribs. It has several Perforations, or Passages for the Nerves and large Blood-vessels, *The Diaphragma or Midriff.*

vessels, which retain to and from the lower Belly ; as also a large one for the Gullet.

Its Vessels. It has Veins from the Trunk of the *Cava*, with some Twigs from the *Vena Adiposa*.

Its Arteries are from the *Aorta* : Its proper Nerves are two, proceeding from the Spinal Marrow at the third or fourth Joinings of the Rack-bones of the Neck, being in their Course sustain'd by the *Mediastinum*. These Nerves enter in at its Center, and disperse themselves thro' its whole Substance.

Its Use. Its chief Use is in Respiration, and is the principal Muscle that assists in that Action, dilating and contracting itself as the Ribs are dilated and contracted. It is also useful in assisting the *Peristaltick* Motion of the Guts, whereby the Chyle is forwarded into its Vessels, and the Excrements to a Discharge. It is moreover useful to divide the lower Belly from the Chest, as has been observ'd.

The Mediastinum. As the *Diaphragm* divides the lower Belly from the Chest, so the *Mediastinum* divides the Chest in the middle. It is a double Membrane arising from the *Pleura* or Rib-coat, where, beginning at the Breast-bone, it holds a direct Course towards the Back. Near the Back and the Breast this Membrane is united for a little way ; but in the middle it is separated so wide, as to contain the Heart and its *Pericardium*, or Bag : It is like the *Pleura* from whence it proceeds, very smooth on its outside towards the Lungs, but somewhat rough towards the Heart, by reason the *Pericardium* adheres to it by several small membranous Filaments.

Its Vessels. It has Veins from the *Phrenica*, or *Midriff-vein*, and from the *Vena sine pari* ; it has also one from the *Subclavian*, which is proper to it, call'd the *Mediastina*. Its Arteries spring from the *Phrenica*, and its Nerves are detach'd from that Pair, which descend by it to the *Midriff*.

Its Use. Besides its Use in dividing the Breast, it preserves the Heart from being hurt in its Motion by the bony Sides of the Chest. It is further useful to sustain the Vessels which take their Course thro' it ; and by its being knit to the *Midriff*, preserves that Muscle from being drawn too much downwards by the Weight of the Liver, whose suspensory Ligament is fixed to it.

§. II. *Of the Heart and Pericardium, &c.*

The *Pericardium* is that Bag in which the Heart is inclosed, as in a Purse. It rises from the Basis, or upper part of the Heart, from the outer Coats of the great Vessels, which spring originally from the *Pleura*. It is of a middle Substance, neither very hard, so as to hurt the Lungs, nor yet so soft as to be itself easily injur'd by the Motion of the Heart. It is perforated in five Places, namely, on the right Side, for the ascending Trunk of the *Cava*, which coming from the Liver, enters the right *Ventricle*, and by the *Sub-clavian* Vein, which descends by the Chancel-bones into the same Ventricle; and thirdly, by the *Pulmonary* Artery, which goes out of the right Ventricle into the Lungs: On its left Side it is perforated for a Passage to the *Pulmonary* Vein, which comes from the Lungs, and enters the left Ventricle: And, lastly, for the great Artery that passes out of the said Ventricle.

Its Veins are from the *Phrenick* and *Auxiliary*; its Arteries are so small, that they are not very discernable; its Nerves come from the *Par vagum*.

The Use of this Purse, or Bag, is to cover the Heart, and be a Defence to it, to contain a Moisture not only to keep it glib and easy in its Motion, but also cool. There are various Opinions concerning this Liquor of the *Pericardium*, and from whence it is derived; but I shall not give the Reader any Trouble by reciting them, but hasten to the Heart itself.

The *Heart* is the principal Fountain which sends Blood and Nourishment into all Parts of the Body, and is wonderfully suited in every respect for that Purpose.

It is situated in the Midst of the Chest, where it is encompass'd by the Lobes of the Lungs, having its Point inclining to the left Side. It is in shape not very different from what it is in most other Animals, only in a Horse it does not grow gradually narrow towards its Point, as in some, nor so broad in proportion at its Basis, or Root.

Its Substance is fleshy and very solid, that it may the better endure the Perpetuity of Motion, and expel the Blood with more force to all Parts of the Body. It is for that purpose composed of muscular and fleshy

fleshy Fibres, which, towards the Top, take their Direction spirally, like the Contortion of a Snail's Shell.

It is said to have a twofold Motion, which by Anatomists is call'd *Systole* and *Diastole*; or, in other Words, its Contraction, when its Top is drawn towards its Basis or Bottom, for the Expulsion of the Blood into the Arteries; and its Dilation, when it is fill'd with Blood from the Veins. As often as we feel the Pulse beat, so often is the Heart contracted; it being the Contraction or *Systole* of the Heart, which communicates that Vibration or Pulsation to all the Arteries.

The Heart, besides its *Pericardium* above-describ'd, hath two Membranes, one that covers all its outside, which it derives from the outer Coat of the great Artery, and another which lines it through all its inside, which proceeds from the inner Coat of the said Vessel. It is stored with Fat towards its bottom, which keeps it moist and glib, as the Water in the *Pericardium* does the rest of its Substance.

Its Vessels. Besides the large Vessels which empty themselves into it, and those which are constantly fed by it, it has a Vein and two Arteries, which are proper to it, and by which its Substance is chiefly nourish'd. These being wove all round like a Garland, are therefore call'd *Coronariæ*. It has also many small Branches of Nerves, which spring from the eighth Pair, and send forth other small Branches to the *Pericardium*.

Its Ventricles. Within the Heart there are two *Ventricles* or Caverns, divided into a right and left, by a fleshy Partition. The right of these *Ventricles* is much the widest, but not quite so long as the left, neither is it of so compact a Substance, or of so great Strength, the *Septum*, or Wall, being peculiar to the left. The Reason of this difference seems to be, because the right *Ventricle* sends the Blood only into the Lungs by the Pulmonary Artery, whereas the left detaches it into all Parts of the Body. The inside of these *Ventricles* is very curiously made up, and interlin'd with several fleshy Pillars, somewhat resembling the small *Gothick* Columns. The Use of which seems to be chiefly for the better Communication of the Blood and Chyle, being, in every Contraction, wrung thro' them as thro' a Sieve.

The Valves of the large Vessels. The large Vessels, which we have already observ'd to retain to the Heart, and likewise those by which it is constantly emptied, have each

each of them Valves, for the better Performance of their several Functions; to wit, the *Vena Cava*, which enters into the right *Ventricle*, has three, call'd *Trienspides*, from their triangular Figure. They are plac'd at the bottom of the Heart, where the said Vein enters, and pointing inwards, a free admittance is given to the Blood, which goes into the Heart, but none of it can return back again the same way. The *Vena Arteriosa*, or Pulmonary Artery, which carries the Blood from the same Ventricle to the Lungs, has also three Valves, call'd *Sigmoideæ*, from the resemblance they bear to the old Greek Sigma, these look from within outwards, by which means they hinder the Blood from returning back again into the Heart.

To the *Arteria Venosa*, or Pulmonary Vein, which returns the Blood from the Lungs into the left Ventricle, belong two Valves, called *Mitrales*, from the resemblance they bear to a Miter. These have the same Office as those of the *Cava* above described: And the three Valves of the *Aorta*, or great Artery, called *Semilunares*, from their being fashion'd like so many Half-moons, have the same Office as those of the *Arteria Pulmonaris*.

But lastly, there belong also to the Heart *Its Auricles.* two *Auricles*, or Earlets, from the resemblance they bear to Ears, being seated like two Purfes on each side of its Basis. These Earlets have their *Diastole* and *Systole*, like unto the Heart, only with this difference, that when the Heart is contracted, the Earlets are dilated; and when the Heart is dilated, the Earlets are contracted; the Reason is, because they receive the Blood from the *Cava* and Pulmonary Veins, so that as they empty themselves into the Heart, it forthwith becomes dilated; and when the Heart is contracted, they must of consequence be filled, the Course of the venal Blood being, at that Interval, intercepted.

The Use of the *Auricles* is to measure *Their Use.* out the Blood in certain Proportions, before it enters the Heart, lest, rushing in with too great an Impetuosity, it might not only cause the Valves to be violated, but occasion a Suffocation in the Heart itself, whereby the vital Faculty might be quite destroy'd.

§. III. *Of the Windpipe and Lungs.*

The *Lungs* are the chief Instruments of *The Lungs.* breathing, they fill up the greatest Part of the
Cavity

Cavity of the Chest, being divided into two Lobes, one of which lies on the right Side of the *Mediastinum*, and the other on the left.

They are composed of the various Ramifications, or Branchings of the Veins, Arteries, and Nerves, together with the Windpipe, the Extremities of whose Branches are very finely wove together, so as to form an infinite number of little *Vesicles*, or *Air-bladders*, resembling small Grapes when they are extended, but not very perceivable at any other time. When an Animal sucks in the Air, these little *Vesiculae* or Bladders, are then dilated and full; and when the Air is emitted, as in Expiration, they become empty.

The Windpipe. The *Windpipe*, whose Branches makeup a great part of the Substance of the Lungs, is that great Chanel, which beginning at the Root of the Tongue, descends down the Throat, and, as soon as it reaches the Lungs, divides itself into two large Branches, one to each Lobe. These send off a great many Branches, which detach an infinite number of other Branches that reach into all Parts, and whose Extremities open into the *Vesiculae*, or Bladders above described. This Pipe is called the *Trachea*, or *Aspera Arteria*, from its roughness, which Name it obtains from the Throtle to the Lungs; but those Branches which it sends off into each Lobe, are term'd its *Bronchia*.

It is compos'd of a double Membrane, which incloses its *Circular Rings*, the innermost of which being muscular, made up of streight and oblique Fibres, it thereby contracts and dilates itself in the Action of Breathing. Those Rings do not quite encompass the *Trachea*, or *Aspera Arteria*, but leave a fourth Part of the Circle wanting, lest they should hurt the Gullet whereon it lies, and occasion Pain in swallowing; but after it divides itself into its *Bronchia*, they go quite round every Branch of it, so far as is perceivable to the naked Eye; and doubtless, hold the same form where its Branches are the most minute and small. These Rings being, in a great measure, cartilaginous, indue the whole Windpipe, and all its Branches, with a sort of Elasticity or Spring, whereby it acts in concert with its membranous and muscular Parts.

The Blood-vessels.

The Blood-vessels, which also compose a great part of the Bulk of the Lungs, are partly a Branch from the great Artery, but principally

pally the Pulmonary Artery and Vein : These Veins and Arteries have frequent Inosculations, or Communications one with another, by which means they become curiously interwoven towards those *Vesiculæ*, or Air-bladders above-mention'd, which kind of Structure is, by most Anatomists, believ'd to be, to the end that every minute Particle of the Blood in those Parts may be impregnated with Air.

There are, besides these, abundance of Lymphaticks, which attend on the Veins and Arteries thro' the whole Surface of the Lungs, to receive the superfluous Moisture separated by the Glands, which they afterwards discharge into the *Thoraick Duct*. The Lungs have also Nerves, which spring from the recurrent Branches of the wandering Pair. These accompany the Blood-vessels thro' their whole Substance, and are divided into innumerable Branches.

As to the Use of the Lungs, it is evident from what has been already said, that they *Their Use.* are the chief Organs of Respiration, being in every respect suited to receive the Air, which is the proper Element for all Quadrupeds, as well as Man, to breathe in : And as the Windpipe, with all its Branches, is made up of cartilaginous Rings, which act in concert with its muscular Coat ; it thereby becomes endu'd with a sort of *Elasticity* or Spring, by which it is extended as often as the Air is drawn in, and in Expiration becomes again contracted. This sort of Mechanism is plainly visible in the Windpipe of any Animal, which being drawn out to its full Length, immediately gathers itself up as soon as the Force whereby it was stretched is remov'd. The Elevation and Depression of the Chest is in like manner occasion'd by the Extension and Contraction of the Lungs ; and as its Action is thus subservient to them in Respiration, it seems also to be chiefly derived from them ; so that the Air may be properly term'd the principal, tho' not the immediate Cause of that Action also.

Now as we are sure the Air is the immediate and principal Cause of that Respiration, it would be to little purpose to spend Time about the various Opinions concerning that Motion of the Lungs, to wit, whether it be Natural or Animal, as the Philosophers term it ; or whether, according to some, it be partly Natural and partly Animal : I shall only therefore observe, that altho' it is somewhat in our Power to regulate that Action, by drawing in more or less Air at pleasure, yet we are very well satisfied no Creature can imprison it in the Lungs, or keep it out two Minutes, with-

without a manifest Violence to Nature ; so that it seems to be chiefly natural, there being nothing in it voluntary, further than that we can, in some measure, help ourselves in Accidents which may happen to those Parts, which cannot but occasion Pain as often as the Lungs and Chest are extended or depress'd, if we should let them have their full Liberty.

But besides the Use of the Lungs in Respiration, by the Air which they perpetually draw in, they invigorate the Blood, and render it more fit for the several Functions of Life. And this will appear reasonable, when we consider that the whole Mass of Blood takes its Course through the Lungs, before it is detach'd into any other Part of the Body ; so that during its Progress there, it is not only purged from many of its thinner Impurities, which visibly fly off from the Mouth and Nose in breathing, but also from its grosser Parts, which by Expectoration are discharged through the Pipes of the *Asperia Arteria*. And as the Blood-vessels accompany the Windpipe in all its Branches, the Blood itself is not only thought to be thereby cooled, but at its return is believed to give a moderate Temperament to the Heart, which, no doubt, must be very much heated by the Perpetuity of its Motion.

The Thymus. Having thus given a short Account of the Heart and *Pericardium*, as also of the Lungs and Windpipe, together with their several Uses, I shall, before I leave this middle Cavity, take some notice of that large Kernel called the *Thymus*. It is so called from the resemblance it bears to a Leaf of *Thyme* in its shape, and is situated across the uppermost Part of the Breast, along the Collar-bones, covering them on the inside.

Its Use. Its Use is to prevent the two large Branches of the *Aorta* and *Cava* from being hurt by the sharp Edges of these Bones in their Passage over them. And as it serves to this Purpose chiefly (there being no Vessels or excretory Ducts visible in its Substance) it is therefore much larger in Foals than in grown Horses, as it is indeed proportionally in all other young Animals ; because the older any Creature grows, the Coats of the Blood-vessels become the more nervous and strong, and therefore not in such danger of being abraded.

§. IV. *Of the Larynx, and Pharynx, with the Tonsils, &c.*

Tho' these do not properly belong to the Chest, yet as I have already treated of the Gullet and Windpipe, to which the *Larynx* and *Pharynx* are united; and as the one has Communication with the lower *Venter*, and the other with the Chest, I have therefore chose to take notice of them under this Division, leaving those Parts by which they are circumscribed, to be considered with the Bones and Muscles.

The *Larynx* is composed of five Cartilages or Gristles; the first of which is call'd *The Larynx. Scutiformis*, because it resembleth a Shield: The next is call'd *Annularis*, from its likeness to the Ring which the *Turks* wear when they go a shooting: The third and fourth, because they are joined together under one common Tegument, and resemble an Ewer, are therefore termed *Guttales*; these two form the *Glottis* or little Tongue: The fifth is named the *Epiglottis*, because it is placed above the *Glottis*. The Substance of this is soft, and in shape like an *Ivy-leaf*, and serves as Valves to hinder any thing from falling into the *Windpipe*.

These Cartilages are mov'd by several Pair of Muscles, and serve principally to frame and modulate the Voice in all Creatures, and are therefore the Instruments of neighing in Horses. *Its Use.*

The *Larynx* has two Pair of Glands or Kernels belonging to it; one Pair is placed on its upper Part, and at the Sides of the *Uvula*, and are call'd the *Tonsils*; and by some, in human Bodies, the *The Tonsils. Almonds of the Ears*. These separate a great deal of the Saliva which comes from a Horse's Mouth, and serve to moisten not only the *Larynx*, to which they chiefly belong, but also the *Gullet*, by which means every thing passeth down it the more easily.

The other Pair are plac'd at the lower End of the *Larynx*, one on each side of the *Scutiform*, or Shield-like Gristle; these in Horses are very large, and are swell'd when a Horse has the Glanders.

The Top of the Gullet, or *Pharynx*, *The Pharynx.* which is so call'd from its Office, because it carries and conveys Food from the Mouth towards the Stomach; is somewhat more fleshy than the rest of the Gullet, being also seated in the upper Part of the Throat behind

behind the *Larynx*. It has several Muscles whereby it acts, but these shall be also treated of hereafter.

TABLE III. Shewing all the Parts of the middle Cavity, or Chest.

Fig. 1. Represents those Parts *in situ*.

- AA.** *The outward Teguments laid back.*
- B.** *The Breast-bone, and some part of the Ribs also laid back, to shew the Parts contained in the said Cavity.*
- C.** *The great Kernel called Thymus.*
- D.** *The Heart.*
- EE.** *The right and left Lobes of the Lungs.*
- F.** *The Mediastinum.*
- G.** *Part of the Midriff.*

Fig. 2. Shews the *Vena Cava*, and right Ventricle of the Heart dissected.

- A.** *The Orifice of the Coronary Vein.*
- B.** *The treble-pointed Valves.*
- CCC.** *The Fibres which fasten the Ends of the Valves to the Substance of the Heart.*
- DD.** *The Sides of the Ventricle.*

Fig. 3. Shews the left Ventricle also opened lengthways, to shew its Valves.

- A.** *The Pulmonary Vein coming from the Lungs.*
- BB.** *The Valves called Mitrales.*

Fig. 4. Shews the Lungs divested of their *Parenchyma*, or fleshy Substance.

- A.** *The Larynx.*
- B.** *The Windpipe.*
- CCCC, &c.** *Its various Branches.*
- DDDDD, &c.** *The innumerable little Bladders at the Extremities of these Branches.*

Fig. 1.



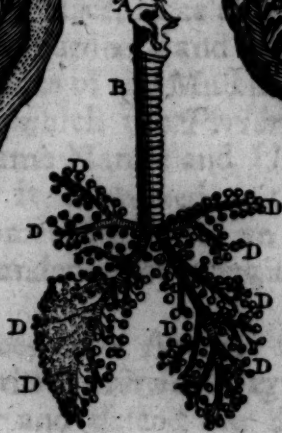
Fig. 3.

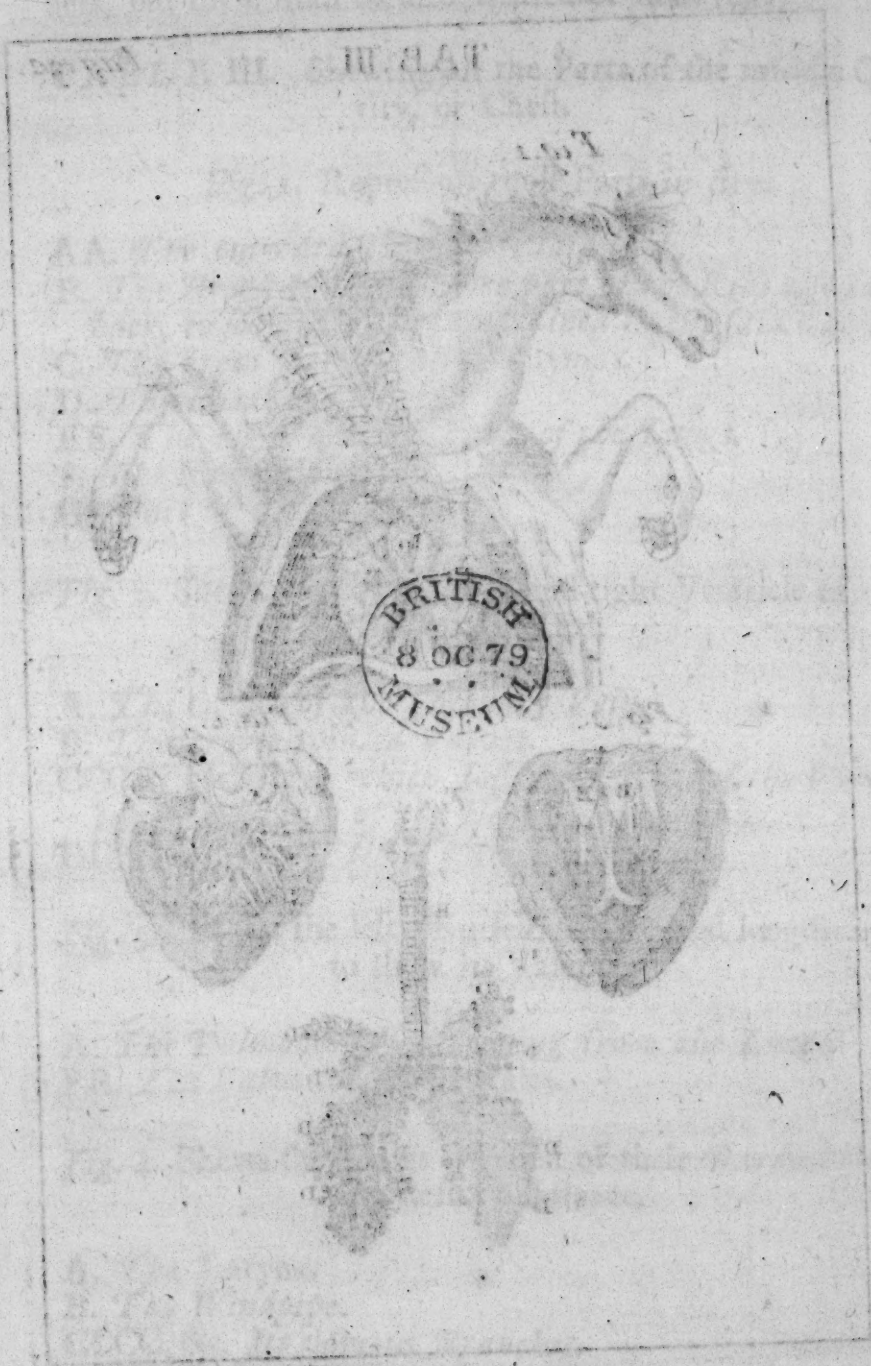


Fig. 2.



Fig. 4.





C H A P. IV.

Of the upper Cavity, or Head.§. I. *Of its proper containing Parts.*

AS the Parts already describ'd have always *The Head.*
 been esteem'd the Seat of the *Vital*
 Faculty, so the Head is accounted that of the *Animal*, it
 being the Origin from whence all Sensations are deriv'd.

The proper containing Parts of the Head
 are reckon'd to be these five; namely, the *its proper con-*
Muscles, the *Pericranium*, the *Periosteum*, *taining Parts.*
 the *Skull*, and the *Meninges*, or Membranes contain'd within
 it: Leaving the Muscles and the Skull to be treated of in
 their proper Places, I shall begin with the *Pericranium*.

It is a very thin Membrane spread over the whole Skull,
 adhering every where to the *Periosteum*, excepting where
 the Temporal Muscles come between them. There are
 a great number of slender Fibres, which pass from it thro'
 the *Suture* or Seams of the Skull to the *Dura Mater*, or
 uttermost Membrane of the Brain; which Fibres serve to
 stay that Membrane in its place, so as to hinder the Brain
 from being hurt by the hardness and unevenness of the
 Skull in violent Concussions of the Muscles of the Head.

The * *Periosteum*, to which the *Pericranium* adheres,
 is a Substance of the same Nature and Use, only that it
 is somewhat thinner. It is endued with an exquisite
 Sense, from whence sometimes arises an excessive Pain
 when the Bones are wounded, they being themselves alto-
 gether insensible.

These two Membranes have Arteries from the *Caro-*
tids, and Veins from the *external Jugulars*, and are
 chiefly of use to cover and defend the Skull from out-
 ward Injuries, which otherwise would be exposed and laid
 bare by every slight Accident.

Immediately under the Skull we observe *Dura Mater.*
 the *Dura Mater*, so call'd from its *Tex-*
ture, which is very firm; and likewise, as it has been ge-
 nerally believ'd to give Origin to most Membranes through-
 out

* The *Periosteum* is believed by modern Anatomists to be only an
 Expansion of the Teguments of the Muscles of the Head.

out the Body. It is the uppermost Membrane peculiar to the Brain, which it involves and covers on all Parts, and is so well fasten'd to the *internal Processes* of the Skull, that it cannot easily be remov'd; and besides the Communication which has been observ'd to be between it and the *Pericranium*, it is tied to the Membrane underneath it, to wit, the *Pia Mater*, and to the Brain itself by the Blood-vessels, which penetrate the Skull, and are inserted in it, and pass through it.

The Falx. This Membrane is double, as the *Peritoneum* and *Pleura*, and sends forth a Production, which in Man resembles a Sickle, and is therefore called the *Falx*, it being broad towards the hind-part of the Head, and narrow and sharp towards the Nose, and curv'd at top. Tho' it be of a shape somewhat different in a Horse, yet Anatomists have given it the same Name. This divides the upper Part, or *Cortical Substance* of the Brain, directly in the middle, into a right and left Side. Within its Duplicature are several Cavities, call'd the *Sinus's* of the *Dura Mater*; the longest of which runs lengthways from before to the Noll, where it is divided into some Branches, whereof two descend downwards to the bottom of the *Occiput*, and a third to the *Glandula Pinealis*. These are supposed to be Cisterns that contain the superabounding Blood, which is emptied into them by the Arteries, and suck'd up again at leisure by the Veins.

The Pia Mater. The *Pia Mater*, which immediately involves the Brain, and adheres to it in all its Convolutions and Folds, is a very thin Membrane, but of exquisite Sense; for which reason several Anatomists have been of Opinion, that all the Nerves which arise from the Head, derive their Coats from it, and not from the *Medullar Part* itself. It is furnish'd with an infinite number of *Arteries*, which spring from the *Carotids* and *Cervical Arteries*, and *Veins* from the *Jugulars*; all which are very small, but finely interwoven one with another.

The Use of these Membranes. These two Membranes are not only of use to cover and involve the Brain, in order to preserve it, and to keep its loose Substance together, but also to sustain the Vessels that enter into it. And moreover, they are further useful, as they make up the two innermost Coats, which sheath the Pith of the Back.

§. II. *Of the Brain and Cerebellum, with the Medulla Oblongata, and Pith of the Back.*

The Brain of a Horse is much less in *The Brain.* proportion than the Brain of a Man; but is composed of a Medullary Substance, and has most or all the same Parts which are discoverable in a human Head.

It is divided into three Parts, viz. the *Cerebrum*, *Cerebellum*, or Brainlet, and the *Medulla Oblongata*.

The *Cerebrum* contains all that Substance which lies uppermost in the Head, and which is divided into two Halves by the *Falx* above describ'd: Its outside is of an ashy Colour, and form'd into several Convolutions and Windings, but not with any visible regularity, as the *Cerebellum*; its inside is white, and therefore call'd the *Corpus Callosum*.

The *Cerebellum* is divided from the *Cerebrum* by a Production of the *Pia Mater*, *The Cerebellum, or Brainlet.* which also affords a particular Cover to all its Folds, which keeps them separate and apart from each other. This is made up of four Parts, whereof two are lateral, one on each side; the other two are in the middle, standing before and behind; they are somewhat orbicular, and are called the *Processus Vermiculares*, from the resemblance they bear to the Worms in rotten Timber.

The *Medulla Oblongata* is the Beginning of the *Spinal Marrow*; it is of an uniform, white, and compact Substance, harder than the Brain or *Cerebellum*. It arises from six Roots, *The Medulla Oblongata.* two of which spring from that Part of the Brain, which is called the *Corpora Striata*; the other four arise lower and more backward, from those Protuberances which are term'd the *Nates* and *Testes*. It is round, being in length about two Inches within the Head, before it passes out at the *Noſſ*, whence it is continu'd along the *Chine* downwards to the Fundament, and through all that Passage is term'd the *Spinal Marrow* or *Pith* of the Back. This has, besides the *Pia Mater* and *Dura Mater*, another Membrane, which forms its outermost or third Coat, and is said to arise from a strong Ligament which binds together the fore-part of the Rack-bones.

But before I proceed to the Use of the Brain, it will not be amiss to take a View of its Parts somewhat more nar-

D a rowly,

rowly, that the Learner may be the more fully instructed in the Knowledge of that, which in all Animal Bodies is so absolutely necessary and essential to Life and Motion. In order to which, I shall follow the usual Method of Dissection, beginning with its under-side, having already taken a general Survey of the whole.

The Rete Mirabile.

The first thing, which is the most observable on that side, is the *Rete Mirabile*, spread all over the bottom of the Brain, and is a curious Net-work of Blood-vessels form'd out of the small Twigs which spring from the largest Branches of the *Carotid* and *Cervical* Arteries, having passed through the Skull by proper Holes in the Bones of the Temples. These Vessels are the more adapted and fitted to the Nourishment of the Brain, as they are thus interwoven one with another, by which means the Blood takes a much longer Stay than if they observ'd a more streight and equal Direction.

The Glandula pituitaria.

The *Glandula pituitaria* is the next thing observable: Towards the bottom of the Brain it is inclos'd within the Membranes, and seated in a small Cavity in the *Os Cuneiforme* or Wedge-like Bone, appointed by Nature for that purpose.

The Infundibulum.

It has a Conduit call'd the *Infundibulum*, or Funnel, which conveys the Excrements of the Brain into it; and for that reason Anatomists have believ'd there was a Passage from it to the Nose: But later Inquiries have discover'd two small Ducts which it sends off to the *Jugular Veins*; so that some are of opinion, it is again mix'd with the Blood. This Funnel, or *Infundibulum*, is said to take its Rise from the fore-part of the third Ventricle, into which this Moisture seems to be first separated, and is only convey'd by it to the Gland abovemention'd, where it probably undergoes another degree of Refinement, that it may be the better adapted to the Purposes of Nature.

Anatomists have, it seems, been very much puzzled to find proper Resemblances for several Parts of the Brain, having distinguish'd some of them by the Name of *Nates*, or Buttocks; and others by that of *Testes*, or Stones. These come next under our Consideration: They are four orbicular or round Prominencies, which jet out from the *Medulla Oblongata*, or Beginning of the Spinal Marrow; the two first, to wit, the Buttocks, being the largest, and the two Stones, which are lesser, being only Appendages to them.

The Nates and Testes.

The

The *Corpora Striata*, so called, from their being streaked or chamfered, are only the Ends of the two Thighs, which proceed from the Buttocks; by these the *Medulla Oblongata* adheres to the Brain, as has been observed; and by the *Nates* and *Testes* above described, it adheres to the *Cerebellum* or Brainlet.

Between the Buttocks is placed that noted Gland, called the *Glandula Pinealis*, and has been thought by some Philosophers to be the Seat of the Soul, tho' modern Anatomists have so far degraded it, as to make it only the *Penis* or Yard of the Brain, both on Account of its Situation, and probably as it seems to be of no other Use but to separate a little clear *Lympha* from the Arterial Blood.

Between the Buttocks and near this little Gland, there is a small Chink, to which some have given the Name of *Anus*, or *Arse*; others have called it the *Vulva*; whether it has obtained this Appellation in derision of the other, is not material.

As for the *Ventricles* of the Brain, which by some have been reckon'd four, by some three, and by others but one; I shall not trouble the Reader about the Number, but only take notice, that they are situated in the middle of the Brain, reaching forwards towards the Nose, and downwards towards its bottom, in shape of a Half-moon. The Use of these Ventricles is, according to the latest Inquiries in Anatomy, to serve as a Receptracle for that Portion of the *Serum* which is separated from the *glandulous Skin* that invests them, and from the *Glandula pituitaria*, and is thought to be again imbibed by the Veins, and by them conducted afresh into the Mass of Blood. They are likewise thought of use to give a free Passage to the Blood in those Channells called the *Plexus Choroides*, that run along their sides, which probably might be too much compress'd by the great Weight of the Brain, had not Nature found out that free and easy Situation for them.

Besides those Parts already described, there are to be found in the Brain the *Fornix*, the *Septum Lucidum*, and the *Corpus Callosum*.

We have already taken notice of the *Corpus Callosum*, as being the inner Substance of the Brain, which is distinguish'd from the cortical Part that involves it by its Whiteness, &c. The *Septum Lucidum* is only that Partition which divides the *Ventricles*; and the *Fornix* is a kind of Vault

or Arch which rises between the Brain and the *Medulla Oblongata*, and serves to bear up the upper part of the Brain, that it may not press too hard upon the subjacent Parts.

The Use of the Brain. Now as to its Action and Use, it is very certain, the Brain, according to the Philosophers Terms, is the chief Seat of the *Animal Faculty*, as the Heart is the Fountain of the *Vital*. The Animal Spirits being prepared out of its *Parenchyma*, or marrowy Substance, and from thence conveyed into the Nerves, which communicate Sense and Motion to all Parts of the Body.

The Animal Spirits. These Spirits are first of all form'd out of the *Vital*, or in other words, out of the *Arterial Blood*, which is constantly sent by the Heart to the Brain, where there are innumerable Twigs dispersed, not only through its *Cortical*, or greyish Substance, but also through its white and *Medullary* Substance; some of which Twigs spring from the *Plexus Choroïdes* and *Rete Mirabile* above describ'd, and others from the *Carotids* themselves immediately. The superfluous *Serum* is separated by the Glands, and that Portion of the Blood which is not changed to Animal Spirits, is taken up by the Veins, and returned back again from whence it came. As soon as those Spirits are elaborated, or rather, as soon as the Blood has undergone so many different Mortifications and Changes in the Capillary or Hair-like Vessels of the Brain, as to render its Particles fine enough to pass through the inner *Medullar* Substance, they then enter those Fibres which compose it, and seem to be no other than a large Bundle of *Tubuli* or little Pipes, which (if the Comparison may be used) somewhat observe the same Oeconomy with those of the Kidneys, which pass from the external *glandular* Part to the *Caruncule Papillares*. These little Particles, or rather Spirits, are conveyed by the aforesaid *Tubuli* to the upper Processes of the *Medulla Oblongata*, to wit, the *Corpora Striata*, *Nates*, and *Testes*, &c. and are there emptied into the Nerves, whose inner Substance is white and fibrous, like the *Medulla* from whence they spring.

Their Use. After this short Account of the Formation of the Animal Spirits, the next thing that occurs, is in what manner they become the Instruments of Sense and Motion. In order to give the Reader a general Idea of this, which is as much as can be done in so small a Treatise, it will be necessary in the first Place to consider the Substance

Substance of a Nerve, which is very solid and compact, proceeding by a sort of Gradation from that of the Brain; for as the *Corpus Callosum*, or inner Substance of the Brain, is more firm than the *Corrical* Part, so a Nerve is even at its Origin some degrees beyond that in Solidity; by which means it is the more adapted to its peculiar Functions. But besides the Solidity and Compactness of the Nerves, their Tenseness is also a great Means of their Action; for as the Blood-vessels, which have no other Sense but what is borrowed from them, and as their Office is only to carry vital Spirits for the common Nourishment of the Body; as these are therefore branched off in many Circumvolutions and Turnings, and are form'd irregularly in such Meanders as we observe in Brooks and Rivulets: And as some Branches are sent upwards, and others downwards, as is necessary, in order to their several Functions; so the Nerves, on the other hand, as they take their Origin from the Head and Spine, are detach'd from thence into all Parts of the Body in such manner, as they may be every where braced as straight as the Strings or Cords of an Instrument; by which means they have a free and uninterrupted Undulation, and as in all their Branchings, they are little or no ways contorted, but, for the most part, form compleat and perfect Angles, the said Undulation is communicated as intirely to their Origin, as if their Course was directly straight from it.

And therefore as the Nerves are of a very compact and solid form, and can be brac'd and extended in such manner as has been observ'd, and consequently endu'd with Elasticity, they must easily and suddenly communicate all Sensations to the Imagination, there being no Part of the Body which does not participate of some little *Fibrille* or Threads detached from them; or, according to some, there being no Part of the Body, which is not more or less adapted to receive the nervous Juice; by which Means a close and intimate Correspondence is kept up with the Nerves: So that whenever an Animal Body is touch'd on any Part, it is presently sensible of that Touch, by virtue of the Communication which they keep between the Head and all Parts of the Body.

Now as to Motion, to which the Nerves are equally subservient, that (I think) is termed *Voluntary* in a Man, and *Spontaneous* in a brute Creature, as the one is said to act by the Determination of the *Will*, and the other by *Instinct*; but this is not material, since both are said to be produced

duced by the Determination of the Animal Spirits ; for when any Creature goes to move, the Spirits are thought to be detached in a more than ordinary Quantity into those Parts which are to be put in motion. And as the Arterial Blood always accompanies the Spirits, and is equally determined with them, the Muscles are thereby fill'd or emptied, according as the Will or Instinct directs, as we shall see more fully hereafter.

But before I leave this Subject, it may perhaps be expected that I should give some Account of the Nature of those Spirits which are said to flow in the Nerves, and are reckon'd the principal Cause of Action in them. To satisfy those who have a Curiosity that way, I shall only in brief take notice, that these are thought by some to be of a viscid and clammy Nature, though composed of very keen Particles : And this sort of Composition they think is agreeable to that Elasticity and Springiness, which is observable in the Nerves. Others have denied any such thing as a Juice to be in the Nerves ; because when a Nerve is cut asunder, there is no visible Bore or Cavity in it ; neither are there any *Poruli* or little *Interstices* perceivable in it. But it is very certain, according to the common and unalterable Laws of Nature, whereby all Bodies are made up of Parts, and these also made up of other Parts, they must therefore have *Interstices*, tho' they be imperceptible ; and that Juice which flows in them, whether between those *Interstices* only, or any other way, tho' it be also imperceptible, yet it is that which we not improperly denominate the *Animal Spirits*. Though we can say but very little more than this, that it is the most subtle of all the Juices which are to be met with in an Animal Body, and therefore the best suited to the Services for which it is appointed.

§. III. *Of the Rise and Progress of the Nerves.*

Besides the Nerves, which arise from the *Vertebrae* of the Neck, Back, and Loins, there are nine Pair which take their Origin immediately within the Skull.

*The first Pair
of Nerves.*

The first are those which go to the Nose, and are therefore called the *Olfactory* Nerves, and by some the *Mamillary Processes*, because they are round at their end like a Pap : They rise from the Shanks of the *Medulla Oblongata*, betwixt the *Corpora Striata* and the Chambers of the *Optic Nerves*,
from

from thence running along the bottom of the Brain; after increasing and growing broader, they are divided into a great many Twigs, which receive outer Coats from the *Dura Mater*, having only before a single Integument from the *Pia Mater*. Many of these Twigs pass through the Holes of the Sieve-like Bone to the Nose, where they help to compose the Organs of Smelling.

The second Pair are the *Optic* or seeing *The second Pair.* Nerves; these rise a little behind the former, out of the *Medulla Oblongata*: At their Rise they are somewhat soft, being covered only with the *Pia Mater*, but as soon as they reach the *Dura Mater*, they become clothed by it, as the *Olfactory Nerves* above described. This outermost Coat constitutes the *Sclerotica*, or horny Tegument of the Eye; and from the *Pia Mater* proceeds the next Coat of the Eye, called the *Uvea*, from its resemblance to a Grape in colour: And lastly, the marrowy Substance forms the *Retina*, or Net-like, which by some is called its *third Coat*.

The third Pair are called the *Eye-movers*: These arise from the bottom of the *Medulla Oblongata*; at the Rise they are united, which is the Reason why some believe, when one Eye is carried towards any Object, the other is also directed towards the same. As the *Optick Nerves* pass thro' the first Hole of the Wedge-like Bone, these pass through the second, until they come to the Muscles of the Eye, where they are dispersed; by their actuating the Muscles, the several Motions of the Eye are performed.

The fourth, or *Pathetick Pair*: These *The fourth Pair.* take their Rise different from all the rest, viz. from the top of the *Medulla Oblongata*, behind the *Nates* and *Testes*, and passing along the side of the *Medulla*, are afterwards hid in the *Dura Mater*, until they reach the Hole thro' which the last Pair do pass, which they accompany, until they are inserted in the *Trochlear Muscles* of the Eyes; these are called by Dr. *Willis* the *Pathetick Nerves*, which move the Eyes in all Passions and Affections.

The fifth Pair take their beginning in a Horse a little below the former, tho' in a human Subject they seem to arise from the *Cerebellum*. These are made up of a Bundle of Fibres gathered together, so that they look to be a number of Nerves springing from one common Origin, which send out Branches into all Parts of

of the Head, viz. to the Eyes, the Palate of the Mouth, the Nose, but chiefly to the lower Jaw. The Temporal Muscles, and Muscles of the Face, and some Branches which go downwards, inoculating with the sixth Pair, constitute the Root or the first Trunk of the *Intercostal Pair*. It is owing to the several Branchings and Inoculations of the Nerves following, that there is so great a Sympathy and Consent among all those Parts where they take their Progress.

The sixth Pair. The sixth Pair inoculate with the fifth, after they have passed single through the same Hole of the Skull, and been hid some time under the *Dura Mater*; after which they send back some Branches, which constitute the Beginning of the *Intercostal Nerves*. Each of these are divided, near the Orbit of the Eye, into two, one being spent on that Muscle of the Eye which draws it outwards; the other on that which is only proper to Brutes, called the *seventh Muscle*.

The seventh Pair. The seventh Pair are the *Auditory Nerves*. These in a human Head take their Rise from under the *Annular Processes* of the *Cerebellum*, but in a Horse from the Sides of the *oblong Marrow*. They have two Processes, one of which is somewhat soft, and is carried thro' the Hole of the *Os petrosum* into the Cells of the Ears, which it cloaths with a very fine Membrane, and by which the Sounds are conveyed into the common Sensory; the other is said to conduce chiefly to Motion, sending forth several Slips to the Tongue, Lips, Mouth, and Nose, actuating the outward Organs of the Voice; others taking their Course to the Muscles of the Forehead and Eyelids, and some to the Muscles of the Ears, assisting a Horse in moving his Eyes and Ears, upon hearing or seeing any thing that is astonishing to him.

The eighth Pair. The eighth Pair is generally termed the *Par vagum*, or wandering Pair, because they inoculate and keep up a Communication with the Branches of many other Nerves, and are distributed, not only to the Head, but also into many other Parts of the Body, particularly to the Heart, the Lungs, and Stomach, as also to all the *Viscera* in the lower Belly.

The ninth Pair The last Pair, reckon'd by Dr Willis the ninth and last, which arise out of the Skull, but by some, to be only Branches of the fifth and sixth Pair, because they take their Origin from some of their recurring Branches. This Pair has also several Inoculations, and

and are form'd with other Branches in several *Plexus's*, as those last described, but not so numerous. They take their Course chiefly to the *Mesentery* and *Loins*, ending towards the *Fundament*, in several small Twigs.

Having described the Nerves which take their Origin within the Skull, we proceed in the next place to those which derive their Beginning from between the Joinings of the Neck, Back, and Loins, which shall, in a manner, be but just nam'd; they being in Number thirty-seven, whereof seven arise from the Neck, seventeen from the Back, and thirteen from the Loins and *Os Sacrum*.

The Nerves which arise without the Skull.

Those of the Neck are all of them dispersed, partly on the Muscles of the Face, partly on the Muscles of the Neck itself, and partly on those of the Shoulders and Fore-legs; only it is to be remarked, that a Twig from each Nerve of the fifth Pair, being joined with the like Twigs of the fourth and sixth, compose that remarkable Nerve, which goes to the Midriff, called the *Nervus Phrenicus*.

The first two Pair, which arise from between the *Vertebrae* of the Back, communicate with the lowermost of the Neck, sending forth some Twigs to the Neck and Shoulders: The second, as also all that follow, send each of them a Twig to the *Intercostal* Nerve, or Nerve of the ninth Pair, their other Branches being chiefly spent on the *Intercostal* Muscles, and Muscles of the Back, with some small Slips towards those of the lower Belly.

As these are chiefly dispersed among the Muscles of the Back, and the *Intercostal*, and the Muscles of the lower Belly, so those of the Loins, and those also which spring from the *Os Sacrum*, are dispersed into the Muscles of the Loins, Hips, and hinder Legs, only that, the *anterior*, or fore-branches of the first Pair of the Loins, are spent on the fleshy Part of the *Midriff* and the Muscle *Psoas*, and the *posterior* Branches on the Muscle called the *Longissimus Dorsi*.

The Yard of a Horse, and the Womb of a Mare, are also furnished from the *anterior* Branches of the Loins, and the Stones from the *anterior* Branches of the *Os Sacrum*, sent off to them from the fore-part of the Thigh.

§. IV. *Of the Eyes, and their several Parts.*

Every one knows that the Eyes are the Organs *The Eyes.* or Instruments of Seeing, the Ideas of all outward Objects being conveyed by them to the common Sensory. They

They are of a convex, globular Figure, inclosed within their proper Lids; which is an Orbit or Socket made for that purpose out of the Bone.

The Eyelids. The Eyelids, of which I shall first take notice, serve as a Safeguard, to preserve them from Dust, and other external Injuries. They are composed of the Skin, fleshy Pannicle, and Muscles, which are all wrought into an exquisite fineness: The inner Membrane, which is very smooth, that the Eye may move the more easily under it, is a Production of the *Pericranium*; the Extremities or Edges are hard and gristly, partly to help their Action, and partly that they may meet close together. As to the Fat which lies among the Muscles, it is of the same use as in most other Parts, to keep the Eye moist, and easy in its Motion.

The Humours and Tunicles of the Eye. The Eye itself is compos'd of three *Humours*, and four *Tunicles*.

The first of its *Tunicles* is call'd *Adnata*; it arises from the *Pericranium*, and is spread all over the White of the Eye; by which means it keeps it firm in its Orbit or Socket: It is of exquisite Sense, and is very full of Blood-vessels, which are perceivable at all times, but especially when the Eye is any ways hurt.

The Sclerotica. The next, which is the first of its proper Coats, is call'd the *Sclerotica*, from its hardness: It arises from the *Dura Mater*, being opaque on its hind-part, but clear and transparent, like Horn, on its fore-part; from whence it obtains another Name, and is call'd the *Cornea*.

The Choroides. The third, call'd *Choroides*, from its resemblance to the *Chorion*, which inwraps the *Fœtus* in the Womb. This arises from the *Pia Mater*, as it also forms the innermost Coat of the *Optick Nerve*. It is black on its inside, and open on its fore-part the whole Breadth of the *Pupilla*. The fore-part of this Coat is also distinguish'd from its back-part by the Name of *Uvea*, from its resembling the Colour of a Grape. To this belongs the *Ligamentum Ciliare*, because it consists of slender Filaments, like the Hair of the Eyelids. The Use of these Filaments is to widen and constrict the Crystalline Humour, by contracting or opening the Perforation of the *Uvea*.

The Retina. The innermost or fourth *Tunicle*, is an Expansion of the Substance of the *Optick Nerve*, and

and is call'd the *Retina*; because it encompasseth the glassy Humour, like a Net. By a Combination of the Rays of Light on the fine Filament of this Coat, and the Reflection which is caus'd by the opaqueness of the *Sclerotica*, and the blackness of the inside of the *Uvea*, all external Images are convey'd distinct to the Imagination; whereas if the Rays were not thus collected on the *Retina*, there would be no such thing as distinct Vision.

The *Humours* of the Eye, which come next to be consider'd, are in Number three.

The outermost is call'd the *aqueous*, or *The aqueous watry Humour*, being thin and fluid, like *Humour*. Water; it fills up the Space between the *Cornea* and *Crystalline Humour*, in the fore-part of the Eye.

The *Crystalline* is the next, so called *The Crystalline* from its brightness, being clear and transpa- *line Humour*. rent, like Crystal; it is inclosed in the *vitreous* or glassy Humour; it is look'd upon to be the chief Instrument whereby the Rays of Light are collected upon the filamentous Expansion of the *Retina*.

The last is call'd the *Glassy Humour*: It *The vitreous* is not so solid as the *Crystalline*, but ex- *Humour*. ceeds both it and the watry Humour in quantity; it is partly convex, excepting that Cavity where it receives and surrounds the *Crystalline*. It is not so bright as the *Crystalline*, but yet transparent, that the visible Species, received into the *Crystalline Humour*, might not be reflected on before they reach the *Retina*, but should be transmitted to it pure and unmix'd.

§. V. *Of the Ears.*

The Ear is divided into the External and *The Ear*. Internal; the External is that Part which a Horse moves backward and forward at pleasure, and is so well known, that there needs but little to be said about it. Its Use is partly for Ornament, and partly to gather all Sounds, and transmit them to the Internal.

The Internal Ear consists of several Parts, which are very curious, and are seated in *Its Parts*. the Cavity of the *Os Petrosum*.

The first of these is the *Drum*, with its *The Drum*. Cord and Muscles. The Drum is a very thin and transparent Membrane, being an Expansion of the softer Process of the *Auditory Nerve*; it is very dry, that it may

may the better contribute to Hearing; and strong, that it may the better endure loud Sounds, or any other external Injuries; for if once this be broke, or any way relax'd, a Deafness must unavoidably ensue.

*The Concha,
with the small
Bones contained
in it.*

Within this Membrane there is a Cavity call'd the *Concha*, wherein are four little Bones, which are bound together by a small Ligament proceeding from the Cord of the Drum: The first is call'd the *Hammer*, which lies upon the second, called the *Anvil*. The third is named the *Stapes*, or Stirrop; but in a Horse it is triangular, like the Greek Letter Δ . Upon the upper Part of the Stirrop, the longest Foot of the Anvil stands. The fourth is call'd *Orbicular*; it is of a round shape, and tied with a slender Ligament to the Side of the Stirrop, where it is fasten'd to the Anvil.

Their Use.

These Bones are a Defence to the Drum, and preserve it from being torn, or beat inwards by the violent Vibrations of the outward Air in loud Sounds, and are thus assisting to the Sense of Hearing: When the external Air beats upon the Drum, it is driven against the Hammer, which strikes upon the Anvil, as the Anvil beats against the Stirrop; and as this Force is more or less exerted, so the Stirrop opens the oval Window more or less, and proportionably the Sound appears louder or lower.

The Concha.

The Cavities within the *Os petrosum* are in number three: The first, wherein these four little Bones are situated, is called the *Concha*, from its resembling the Shell of a Tabor. When the Membrane is struck upon by any outward Sound, the Echo is made in this Cavity, as in a common Drum.

There are in this Cavity divers Instruments, whereof some are for Pulsation, as the four little Bones above-mention'd; some are for conducting the Air into the other Cavities, such are the two small Perforations, call'd the Windows; and a third sort are those by which the pituitous Matter, collected within this Cavity, is discharg'd towards the Palate and Nose.

The oval Window.

The first of these two Perforations, being the uppermost and largest, is from its figure nam'd the *Oval Window*, which is kept shut next the *Concha*, by the *Basis* of the Stirrop, as often as the Sound ceases. The other, which is round, is always open,

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open, having no Covering, and is divided by the *Os Squamosum* into two Pipes; one of which tends to the *Cochlea*, the other into the *Labyrinth*.

The *Labyrinth*, which is the second Cavity, by its several Turnings and Windings, which are somewhat circular, modulates the Sounds in such manner as they may be leisurely communicated to the Auditory Nerve, which is dispersed thro' the Membrane that invests this Cavity. There is, besides the two Windows which open into this Cavity, one Perforation which opens out of it into the inner Cavity call'd the *Cochlea*, into which the Air passes, after it has been agitated in this Cavity and the *Concha*. Besides these, there are four other small Holes for the ingress of the nervous Fibres that are inserted on the Membrane, which cloaths it.

The *Cochlea*, which is the third and innermost Cavity, is so call'd from the resemblance it hath to a Snail's Shell, especially in its spiral Windings; it is far less than either of the former, but invested, as the others are, with a thin Membrane, into which also the slender Fibres of the Auditory Nerve do enter. This Cavity is fill'd with the internal inbred Air, as well as the former, by which the Echo is made to the Impulse of the internal Air upon the *Tympanum*: And the Auditory Nerve being expanded upon the Membrane, which lines all those Cavities, it is suddenly affected therewith, whereby it comes to be communicated to the Origin of the Nerves, where all Sounds are distinguish'd.

§. VI. *Of the Nose and Mouth.*

As the Ear is made up of Parts, whereof some are External, and some Internal; so the Nose is also composed of the like Parts.

The external Parts of the Nose are made up of Skin, Muscles, Bones, Cartilages, and Vessels of all sorts.

The Skin is extremely thin, and without Fat, and adheres so fast to the Muscles and gristly Part, that it can hardly be separated from them.

The Bones, which make up its Cavities, are some of them common to it and the Forehead, and some of them proper to the Nose only. The Gristles are in number five, which shall be treated of hereafter with the Bones.

The

Its Vessels. The Vessels of the Nose are Veins from the Jugulars, Arteries from the Carotids, and Nerves from the third Pair, besides the Olfactory Nerves, which are proper to it.

It is lin'd on its inside with a fine Membrane, which taketh its Rise from the *Dura Mater*. There are on the back-side of this Membrane abundance of little Kernels, which separate a great part of the Moisture which comes from the Nose. It has also another Membrane, call'd its *Muscular Membrane*, which is said to contract and draw together the Nostrils.

The Os Cribriforme. On the upper part of the Nose is seated the *Os Cribriforme*, or Sieve-like Bone, which is perforated in many places, that the small Twigs, which spring from the Mamillary Processes, may have a free Passage thro' it into the inside of the Nose, serving there to be the immediate Organs of Smelling.

As the Ear is form'd in such manner as to collect and gather together all Sounds into its Cavity, so the Nose is likewise adapted to gather into it all Smells; which Sensation is perform'd in this manner: The *Effluvia*, which fly off from all odoriferous Bodies, being carried in the circumambient Air, are communicated to all Creatures as soon as they draw in their Breath at the Nostrils; but more to a Horse than to many others, by reason he sucks in most of his Breath that way. As soon as these *Effluvia*, or odoriferous Particles are got within the Nose, those little Branches of the Olfactory Nerves, which are spread all over its inside, are immediately affected therewith, and immediately communicate that Sensation, whether it be grateful or unpleasant, to the common Sensory, where it is distinguish'd.

Its Use. Thus the Nose is not only useful, as it helps all Creatures to distinguish that which is proper for their Food, from that which may be hurtful to them, as it is the chief Instrument of that Instinct; but it is also useful to discharge a great deal of Excrements from the Blood.

The Mouth. We come now to the Mouth, which is the last Thing to be consider'd under this Division; and is generally divided into that which is call'd External, and that which is term'd Internal.

The Lips. The Lips are its external or outward Parts, which are also divided into the upper and under: These are composed of a soft, fungous Substance,

stance, as also some proper Muscles cover'd on their outside with Skin and Hair, but on the inside with a Membrane common to the Mouth and Stomach.

The Uses of the Lips are to gather in Hay or Oats, or other Food, and to retain it while it is chewing; they likewise serve to keep the Gums and Teeth from external Injuries.

The Parts of the Mouth are some of them *The internal* fleshy and some of them bony: The fleshy *Parts of the* Parts are the Lips last describ'd; as also *Mouth.* the Muscles of the Cheeks and lower Jaw. The bony are the upper and lower Jaw, together with the Teeth.

All these Parts, excepting the Teeth, are cover'd or lin'd with a pretty thick Membrane, which in the Palate is rugged and knotty, by reason there are a great number of Glands lie under it, out of which part of the Slaver is separated into the Mouth.

The Parts contain'd within the Mouth, are the Teeth, the *Os Hyoides*, or Bone of the Tongue; besides which, there are the Gums, the Palate, the *Uvula*, the *Kernels* call'd the *Almonds of the Ears*, the Tongue and its Muscles.

The *Gums* are compos'd of a fleshy *The Gums.* Substance destitute of Motion, that so the Teeth might the better be fasten'd in their Sockets.

The *Palate*, so call'd from its being *The Palate.* fenc'd or pal'd in with Teeth, forms the upper part of the Mouth. It extends from the back-part of the Mouth to the fore-Teeth, but is not so hollow in a Horse as in human Subjects; it is compos'd of eighteen Bars, and consists of Bones and peculiar glandulous Flesh, which are cover'd with a thick Coat, which is full of Perforations or little Holes, that afford a Passage to the Slaver, which is separated from the Glands abovemention'd.

The *Uvula* is a red fungous Kernel, *The Uvula.* somewhat longish, seated at the back-part of the Palate, where the internal Passage of the Nose opens into the Mouth, hanging downward, with a small but bluntish end over the Chink of the *Larynx*.

The Use of the *Uvula*, is to moderate the Coldness of the Air before it passes into the Lungs, and to hinder any thing from falling into the Windpipe: In a Horse it is of other use, as it hinders the Water from going into the Nose when he drinks. When this is much relax'd, it prevents

the Food from passing into the Gullet, and makes it apt to return back into the Nose.

The Tongue. In describing the *Tongue*, I need say nothing as to its Figure, it being sufficiently known to every one. It is cover'd with two Membranes, the outward cloathing only its upper Part, being also very porous. The inward Membrane covers the whole Tongue, and is thin and soft, having many Protuberances branching out of it, which are inserted into the Pores and Holes of the outward Coat.

It is of a fleshy Substance, having Vessels of all sorts, to wit, Veins from an inward Branch of the external Jugulars, Arteries from the Carotids, and Nerves from the fifth and eighth Pair.

There are also belonging to the Tongue several Muscles, by which all its Motions are perform'd; but of them hereafter. These Muscles are interlarded with a considerable deal of Fat, which, no doubt, serve somewhat to facilitate their Action.

The Use of the Tongue is not only for Taste, but also to serve as an Instrument to turn every thing taken in at the Mouth, that it may be the more expeditiously chewed, and afterwards to thrust it backwards towards the Stomach.

Underneath the Root of the Tongue there is a pretty large Kernel, from whence two Pipes, call'd the *Salival Ducts*, do spring; one from the fore, and another from the hind-part; these two are soon united into one, which runs towards the Chin. But Dr. *Wharton* has observ'd, that in a Horse there are other pretty remarkable Glands that stand on each side this Duct, and discharge themselves into it. This Pipe ends in other small Glands towards the *Frænum* or Bridle of the Tongue, which discharge some part of that Slaver which keeps the Mouth continually moist. Besides this Duct, there are two others of the same use, which arise out of the Kernels under the Ear, called the *Parotides*, and run on the outside of the Jaw-bone to the middle of the Cheek, where they open into the Mouth.

The Use of the Slaver is the same with the *Saliva* or Spittle in Men, and serves continually to moisten the Mouth, and all the solid part of the Food, whilst it is in chewing, and being swallow'd down with the Aliment, it is believ'd by some Anatomists to contribute to Digestion.

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T A B. IV. *Fig. 1.* Shews the Brain *in situ*, when the upper part of the Skull is taken off.

- A. *The Substance of the Brain cover'd with the Pia Mater, only the Dura Mater being remov'd.*
- BB. *The Cerebellum, or after Brain.*
- CC. *The Proccesſes Vermiformes, or Worm-like Proccesſes.*
- D. *A Portion of the Medulla Oblongata.*
- E. *The Dura Mater, ſo far as it contains the Medulla Oblongata, cut aſunder, and turned back.*

Fig. 2. Represents the under ſide of the Brain and Spinal Marrow, with the Origin of the Nerves.

- AA. *The Eyes.*
- BB. *The Optick Nerves.*
- CC. *The moving Nerves of the Eyes.*
- DD. *The Pathetick Nerves.*
- EEEE, &c. *The other Nerves ariſing within the Skull from the Spinal Marrow.*
- FFF. *The bottom of the Brain.*
- GG. *The Medulla Oblongata, or beginning of the Spinal Marrow.*
- H. *The Spinal Marrow cut off.*
- III. *The Bars of the Palate of the Mouth.*
- QQ. *The Cavity that goes from the Palate to the Noſe.*
- RRRR. *The Teeth.*
- SS. *The Dura Mater turn'd back.*
- T. *The Glandula Pituitaria.*

Fig. 3. Shews the Bones of the Ear, &c.

- AA. *The inside of the Os Temporis, or Temple-bone.*
- B. *The Os Spongioſum, or Spungy Bone.*
- C. *The Hole thro' which the Auditory Nerve does paſs.*
- D. *The greater Winding of the Cochlea.*
- EEE. *The three bony half Circles that form the Labyrinth.*
- F. *The Malleus, or Hammer.*
- G. *The Incus, or Anvil.*
- H. *The Stapes, or Stirrop.*
- I. *The external Muſcle of the Ear.*
- K. *The internal Muſcle.*

Fig. 4. Represents the Eye taken out of the Head.

A. *The Optick Nerve cut off.*

B. *The Origin of the Muscles.*

CC. *Their several Terminations into the Coats of the Eye.*

D. *The common Coat of the Eye, called the Adnata, or Conjunctiva.*

E. *The Cornea, or horney Coat.*

F. *The Pupilla, or Apple of the Eye.*

CHAP. V.

Of the Muscles.

§. I. *Of the Muscles of the Eyelids and Eye.*

Three Pair of Muscles belonging to the Eyelids.

THE Eyelids have three Pair of Muscles, one Pair to open them, and two to shut them.

That which openeth the Eyelids is called *Rectus* or *Aperiens*, from its Office. It springeth with a slender, but fleshy Beginning, from the same Place as the *Elevator* of the Eye doth, to wit, at the Hole through which the *Optick* Nerve passeth into the Orbit, and holds the same Course with it, till at last parting from it with a pretty broad, but thin Tendon, it is inserted into the Gristle at the edge of the upper Eyelid, where it serves to open the Eyelid by lifting it up.

The other two Muscles of the Eyelids are called *Shutters*, and otherwise *semicircular*, because each of them runs the length of the Eyelid; they are seated between the *Membrana Carnosa*, and the inner smooth Skin that lines the Eyelids. That which draweth down the upper Lid, is larger than the Muscle which moveth the lower Lid to shut it.

The frontal Muscles are also thought to contribute something to the Motion of the Eyelids, as they arise from the Skull, near the Coronal Suture, and are inserted in the Eyebrows; for by their Action they contract the Skin of the Forehead, by which means the upper Eyelid is sometimes drawn a little upward.

The Eyes have Seven Pair of Muscles belonging to them.

The Eyes have seven Pair of Muscles, of which four are straight, two oblique or slanting, and the other Pair circular, or round. The straight serve to move the Eyes upwards

wards and downwards, the oblique move them obliquely, and the circular Pair keep the Eyes suspended in their Place. They all arise from the same Origin, to wit, from the Membrane that invests the Orbit of the Eye, near the Hole thro' which the *Optick* Nerve doth pass into the said Orbit, touching one another at their Beginning, but immediately separating into fleshy round Bodies, from which they again degenerate towards their Termination into a thin membranous Substance, which is inserted into the horny Coat of the Eye, encompassing it as far as it is white.

These Muscles have their several Appellations from their several Actions. The first of the straight Muscles, from its Office of pulling up the Eye, is called *artollens*, and in Man sometimes *superbus*; as the second is called *deprimens*, or *humilis*. The third is called *adducens*, because it pulleth the Eye towards the Nose: And the fourth *abducens*, or *indignatorius*, from its Office of drawing the Eye to the outer Corner; which Turn or Aspect of the Eye betokens Anger or Scorn.

When these Muscles act separately, they have these four several Motions; but when they all co-operate or work together, they have but one tonick Motion, which is principally to keep the Eye steady and fix'd; but in Beasts that have the suspending Muscle, that Action is perform'd chiefly, if not altogether by it.

The next are the two oblique Muscles, which also are termed the *Circumagentes*, from their rolling the Eye about, and are distinguished by the Names of *Major* and *Minor*; they being longer than the other, though somewhat slenderer; the longer arises from the same Origin with those above described, and endeth in a small round Tendon, which passeth through the transverse Gristle called *Trochlea*, into the inner Corner of the Eye: This rolleth the Eye inwards, as the other (which rises from the Chink in the lower part of the Orbit, and has the same Insertion with the *Major*) rolls it towards its outward Corner.

The seventh, or round Muscle, is called the *Suspensorius*, or *septimus Brutorum*, being peculiar to Brutes only. It is short and fleshy, encompassing the *Optick* Nerve, and is inserted in the hinder part of the *Cornea*. This Muscle is not only assistful in the Tonick Motion of the Eye, but is also useful to keep the Eye suspended, lest, by looking continually towards the Ground, it should hang too much outward.

§. II. *Of the Muscles of the Nose, Lips, and Cheeks.*

*The Nose,
Four Pair of
Muscles.*

or widening Muscles.

First Pair.

The Nose is moved by four Pair of Muscles, two Pair called the *adducent* or closing Muscles, and two Pair term'd the *abducent* or widening Muscles.

The first Pair of the *abducent* arise from the upper Jaw-bone, near the first proper Pair of the Lips, and are inserted partly into the lower part of the Wings, or gristly Circumference of the Nostrils, and partly into the upper part of the upper Lip.

Second Pair.

The second Pair take their Origin near the Eye, with an acute and fleshy Beginning, and end on the Wings, as the other Pair, but more expanded. The Use of these two Pair of Muscles, is to draw the gristly Circumference of the Nostrils upwards, and so to widen and open them.

*Third and
fourth Pair.*

The other two Pair, or *adducent* Muscles, arise, the one from the Root of the Gristle, which ascending cross-ways to the Ridge or Top of the Nose, are there inserted. The other are hid in the Cavity of the Nostrils under the inner Coat that cloaths them, and at their Insertion are spread on the gristly Circumference.

The first Pair of these Muscles being contracted, depress the *Alæ* or Gristles of the Nose; and the latter Pair draw them inwards, and so close the Nostrils; to which Motion, the orbicular or round Muscle of the upper Lip is also assistant; for by its drawing it downwards, it doth at the same time contract the Nostrils.

The Lips.

To the Lips belong several Pair of Muscles, some of which are proper to them alone, and others are common both to them and the Cheeks.

*Two Pair
common.*

The first common Muscle is called the *Quadratus*, or four-square Muscle: It arises from one of the *Vertebrae* of the Neck, and some part of it from the Shoulder-blade, the Collar-bone, and Breast-bone; from all which it ascends obliquely to the Chin, Lips, and Root of the Nose, which Part it draws slanting downwards.

The second is the *Buccinator*: This springs from almost the whole Length of the upper Jaw-bone, at the Root of the Gums; it is seated under the upper part of the former, and

and is spread over the whole Dimension of the Cheek: Besides its use in contracting the Cheek in Horses and other brute Creatures, it greatly assists the Action of chewing, by turning the Meat which falls between the Teeth and the Cheek, over again to be ground and broken.

The Muscles which are proper to the Lips only, are accounted by Anatomists five Pair, and one single Muscle. The first is called *Five pair proper, and an odd one.*

Par attollens, or Lifters up of the Lip. This Pair spring from the upper Jaw, where it forms the Hollow of the Cheek, and are inserted in the upper Lip near the Nose. When both these Muscles act together, they draw the upper Lip directly upwards; but if only one acts, then is but one side drawn upward obliquely. The Action of these Muscles is very perceivable when a Stone-horse smells a Mare, or when any other Horse smells at Dung, or any other Thing that sends up pungent *Effluvia* into the Nostrils. *First Pair.*

The second Pair are the *abducent*, or Drawers of the Lip on one side: They arise from the Cavity that is under the *Os Jugale*, from whence they take their Course on each side to the middle of the upper Lip, where they are inserted with a strong round Tendon; these jointly move the Lip upwards and outwards, as the former; and when they act separately, they assist the former; by helping to draw the Lip sideways. *Second Pair.*

The third Pair is called by *Riolanes*, *Zugomaticum*, or *Jugale*, from their Rise, which is outwardly from the Process of the Bone of that Name: These reach to the sides of the upper Lip, and are inserted near the Corner of the Mouth. Their Use is to draw the Lip sideways upwards. *Third Pair.*

The fourth Pair is called *Deprimens*, from their Office of drawing the under Lip downwards: They arise fleshy and broad from the lowermost Part of the lower *Mandible*; from whence each marches obliquely unto the under Lip, and are inserted into it about its middle. This Pair assist in the same Action with the first of the common Muscles, called the *Detrahens quadratus*. *Fourth Pair.*

The fifth Pair, or oblique *Detrahens*, from their Office of drawing the lower Lip obliquely downwards and upwards: They take their Beginning from the sides of the lower Jaw; from whence they ascend upwards; and are each inserted into the Corners of the lower Lip. *Fifth Pair.*

The Orbicularis, or odd Muscle.

The odd Muscle, or *Orbicularis*, so called because it goes round both Lips, and sometimes *Constringens*, as it serves like a Sphincter, to purse up or contract the Mouth, makes up the greatest part of the Lips, and has all the other Muscles inserted into it.

§. III. *Of the Muscles of the lower Jaw.*

Five Pair belonging to the lower Jaw.

The upper Jaw, being immoveable, hath no Muscles, but the lower Jaw, having divers Actions, is moved by five Pair.

First Pair.

The first are called the *Temporal Muscles*, because they are seated on the Temples. They spring on each side from the Bones of the Forehead, the *Sinciput*, the Temples, and *Os Cuneiforme*, or Wedge-like Bone, and descend under the *Os Fugale*, between the *Periosteum* and *Pericranium*, to the acute Process of the lower Jaw, into which they are inserted: These Muscles pull up the lower Jaw, and shut the Mouth.

Second Pair.

The second Pair arise from the *Stryloid* Process of the Temporal Bone, fleshy and round towards their Origin, but lose their fleshy Substance, and degenerate into a nervous and round Tendon, as they approach the Flexure of the lower Jaw-bone; and then becoming fleshy again, are inserted into the inner side of the lower Jaw, towards its middle or fore-part; these being assisted by the *Quadrati* above described, pull down the Jaw, and so open the Mouth.

Third Pair.

The third Pair are called the *Masseters*, being very assistant in the Office of chewing, by moving the Jaw to the right and left Side; each of these hath two Beginnings, one from the Suture where the fourth and first Bone of the upper Jaw are joined; and the other from the *Os Fugale*, and are largely inserted into the outsides of the lower Jaw: These, by reason of the diversity of their Fibres, move the Jaws divers ways.

Fourth Pair.

The fourth Pair are called *Pterigoideum externum*: These have a double Beginning, as the former, springing partly from the upper and outside of the Wing-like Process of the *Os Cuneiforme*, or Wedge-like Bone, and partly from the rough and sharp Line of the said Bone, from whence, descending downwards, they are inserted in the inside of the lateral Part of the lower Jaw; by

by which means they move forwards, stretching the Teeth of the lower Jaw further out than those of the upper.

The last Pair are called *Pterygoideum*

Interim: These arise from the Cavity of the Wedge-like Bone, and are inserted in the inner and hinder-part of the lower Jaw. Their Use is to draw it backwards, contrary to the former, and also assist the Temporal Muscle in drawing it upwards.

Fifth Pair.

§. IV. *Of the Muscles of the Ears.*

The Muscles of the Ears in Brutes, especially Horses, Asses, Oxen, and other Animals that have large Ears, differ much in Magnitude from those in Man, they being indued with little or no Capacity of Motion; but that is made up in Man by the easy Motion of the Head, by which means he can readily turn himself to the hearing of all Sounds: whereas four-footed Beasts, wanting that Agility, need to have their Ears always moveable, to receive the Sounds every way, and likewise to drive off Flies, and other Insects that are troublesome to them, which Men can do with their Hands.

The Muscles of the Ears.

Now the outward Ear has four Muscles, which are considerably larger in brute Creatures than in Man; and the inward Ear has two, which are proportionable in both.

The outward Ear four Muscles.

The first is called the *attollens Aurem*, the Lifter up of the Ear: It arises at the outside of the Frontal Muscle, from whence being carried over the Temporal Muscle, it is inserted in the upper part of the Ear, moving it upwards and forward.

First.

The second is called *detrahens Aurem*, or the Puller back of the Ear: This arises from the Mammillary Processes, and is inserted into the Root of the Gristle of the Ear.

Second.

The third, or *adducens Aurem*, by which the Ear is drawn forwards and somewhat downwards, is implanted into the lower side of the Root of the Ear, and is only part of the *Musculus quadratus*, before spoken of.

Third.

The fourth, or *abducens Aurem*, because it draws the Ear backward, takes its Beginning at the *Occiput*, or back-part of the Head, whence it is carried transversely to the hinder-part of the Eye, into which it is inserted. This Muscle is assisting to the second.

Fourth.

The

The inner Ear, two.

The first of the two Muscles of the inner Ear, called *Externus Tympani Auris*, or the external Muscle of the Drum of the Ear, because it moves that Membrane upwards; arises from the upper part of the Passage of the Ear, and becoming narrower, it grows into a very fine and small Tendon, which runs along the outside of the Drum; and is inserted into its Center over the Hammer, which, along with the Drum, it draweth upwards and outwards.

The *Internus*, or inner Muscle, takes its Rise from the bottom of the Wedge-like Bone, where it joins to the *Processus Petrosus*; it lies within the Cavity of that Bone, and at its middle is divided into two very small Tendons, whereof one is inserted into the upper Process of the Hammer, and the other into the Neck of it. The Use of this Muscle alone is to draw the Head of the Hammer obliquely forwards, and also to bring it somewhat inwards; but when they act both together, they move the *Tympanum* with its small Bones upwards and downwards. This Action is performed as often as an Animal attentively listens to any approaching Noise.

S. V. Of the Muscles of the Tongue, and Os Hyoides, with those of the Larynx, Uvula, and Throat.

The Tongue, five Pair of Muscles.

The Tongue has five Pair of Muscles proper to itself, besides those that are common to it and the *Os Hyoides*.

The first Pair are called the *Genioglossum*, because they arise from the Chin in Men, and are inserted in the Tongue. In a Horse they arise from the ruggedness on the middle of the lower Jaw; in the inner and lower part of it they have several such Inscriptions as those on the straight Muscles of the Paunch; and are inserted into the lower side of the middle of the Tongue. Their Use is to move the Tongue forwards; which Action is frequently performed by Horses when they gather their Meat.

The second Pair, called *Xpsiloglossum*, because they rise from the bottom of the *Os Hyoides*: They are inserted in the middle of the Tongue, and in their Action are contrary to the former, by drawing it backwards.

The *Myloglossum*, or third Pair, arise from the inner Part of the lower Jaw, at the Roots of the farthest grinding Teeth, and are inserted into the Ligament which ties the

the Tongue to the Jaws. When these act together, they draw the Tongue downwards, but when they act separately, they draw it obliquely to one side.

The fourth Pair, called *Ceratoglossum*, because they arise from the Horns of the *Os Hyoides*, from which reaching to the sides of the Tongue, they are there inserted. Their Action is much the same with that of the third Pair.

The last Pair are called *Styloglossum*, because they arise from the *Styloides*, or Pen-like Process of the Temple-bones: They are inserted into the sides of the Tongue about its middle. When these act singly, they draw the Tongue to one side: but when conjunctly, they pull it upwards and inwards.

The Fork-like Bone of the Tongue, called the *Os Hyoides*, hath four Pair of Muscles, which are common to it and the Tongue.

Four Pair common to the Os Hyoides and Tongue.

The first Pair is called *Sternohyoideum*, because they spring from the inside of the upper part of the *Sternum*, or Breast-bone, and taking their Course close by the Windpipe, are inserted into the Root of the *Os Hyoides*, which they move downward and backward.

The *Geniohyoideum* is opposite to the former, arising from the inside of the fore-part of the lower Jaw, and is inserted into the middle part of the Bone *Hyoides*, which draws it straight upwards and a little forwards.

The third Pair, call'd the *Caracohyoideum*, arise out of the *Processus Caracoides*, at the upper end of the Shoulder-blade, and run obliquely upwards under the first Pair of Muscles of the Head, and are at length inserted into the Horns of the *Hyoides*. Their Use is to pull that Bone obliquely downwards.

The fourth and last Pair, called the *Styloceratohyoideum*, arise from the *Styloid* Process, and also end in the Horns of the *Os Hyoides*; they move that Bone obliquely upwards.

As the Muscles of the Cheeks and Tongue serve to toss the Meat to and again in the Mouth, and those of the lower Jaw help to grind it, so these Muscles, which are common to the Tongue and *Os Hyoides*, are principally of use to give the Tongue such Motions as forward it into the Gullet, when it is sufficiently prepared to go into the Stomach.

The *Larynx*, or upper part of the Windpipe, has six Pair of Muscles, and one single one. The first two Pair being common to it, and all the rest proper.

The Muscles of the Larynx.

The

The first of the common Pair is called the *Sternothyreoides*, and by some *Bronchium*, or the Weasand Muscles: These arise from the upper and inner Part of the Breast-bone, ascending by the sides of the Windpipe to the Shield-like Gristle, where they are inserted. Their Use is to draw down the said Gristle, and so widen the Chink.

The second Pair, called *Hyothyreoides*, arise from the lower side of the *Os Hyoides*, and are inserted into the *Thyreoid* Gristle. These are said to streighten the Chink of the *Larynx*, tho' some affirm they widen it, and that the other Pair contract it.

Its proper Muscles.

The first Pair of the proper Muscles of the *Larynx*, called *Cricothyreoides Anticum*, because they take their Beginning from the Ring-fashioned Gristle *Cricoides*, and are implanted in the sides of the *Thyreoides*, which they move obliquely downwards, thereby opening the Chink of the *Larynx*.

The next Pair, named *Cricoarytenoideum posticum*, arise contrary to the former, from the lower and back-part of the Ring-fashioned Gristle, and are inserted in the lower end of the Ewer-like Gristle, whereby they raise it upward and backward, to open and widen the *Larynx*.

The third or lateral Pair, arising from the sides of the Ring-fashioned Cartilage, terminate in the sides of the Ewer-like Gristle, opening also the *Larynx*, by drawing the Gristles obliquely to one side.

The fourth Pair are the largest and strongest of all the proper Muscles of the *Larynx*, and arise close one to another from the middle of the hollow part of the Shield-like Gristle, filling that Cavity through its whole Length, and are inserted into the two Sides of the Ewer-like Gristle, assisting the former.

The fifth and last, called *Arytenoides*, or *Claudens secundum*, takes its Rise from the hinder Line of the Ewer-like Gristle *Arytenoides*, and is implanted in the sides of the same. This single Muscle helps to strengthen the Throttle, by drawing both sides of the Ewer-like Gristle together.

The Epiglottis no Muscles but in Creatures that chew the Cud.

The *Epiglottis*, or Throat-flap, which covers the Chink of the *Larynx*, has no very distinct Muscles, but in those Creatures that chew the Cud; and shall therefore be omitted in this Place.

The *Uvula* is said to have two Muscles to hold it up, which have also very hard and long Names bestowed on them; but they are so inconsiderable, that they are hardly worth notice.

The Uvula two Pair, but very small.

The *Pharynx*, which is the upper part of the Gullet, has belonging to it three Pair of Muscles, and one single one, besides two Pair of a late Discovery. The first Pair are called the *Sphenopharingæum*, which arise from the Appendage of the Wedge-like Bone, and are inserted into the lateral Parts of the Palate and *Pharynx*, which they widen in swallowing.

The Pharynx three Pair.

The next Pair are called *Cephalopharingæum*, springing from that Part of the Head which joins to the first *Vertebra* of the Neck, and are implanted on the outside of the *Pharynx*, streightning it by their Action, as soon as the Food has pass'd through it, thereby also forcing it down the Gullet.

The third Pair, called *Stylopharingæum*, arise from the *Styloid* Process of the Temporal Bone, and are inserted into the sides of the *Pharynx*, which they dilate and widen.

The single one, which has the Name of *Oesophagiæus*, encompasseth the upper part of the Gullet, forming its Sphincter, and serving for the same Use as those of the Arms and Bladder, to wit, to draw and purse up the Mouth of the Gullet, as those do the Extremities of the Bladder and streight Gut.

One single Muscle, or Sphincter.

The last two Pair, first discovered by Dr. Browne, were by him called *Pterygopalatini* and *Sphenopalatini*. The Use of the first Pair being to depresso the *Glandula Palati*, and that of the second to elevate and lift it up.

Two Pair discovered by Dr. Browne.

§. VI. *Of the Muscles of the Head and Neck.*

There are four Pair of Muscles common to the Head and Neck, and eight Pair proper to the Head only.

Four Pair common to the Head and Neck, and eight proper to the Head.

The *Mastoidæum*, which modern Anatomists reckon the first proper Pair, have each a double Beginning, one from the Breast-bone, nervous, and the other from the Collar-bone, which is fleshy; from whence they ascend obliquely to the Mammillary Processes of the Temporal Bone, into which each is inserted.

When

When these act together, they bend the Head forward, but when separately, they draw it a little to one side.

The *Splenium* is reckon'd the second Pair, being the first of those which pull back the Head; they arise from the five uppermost *Vertebræ* of the Chest, and the five lowermost of the Neck, with a nervous Beginning, ascending to the hinder-part of the Head, where they are inserted. When these act together, they draw the Head backward, but when they act singly, they draw it a little to one side.

The third Pair, nam'd *Complexum*, or *Trigeminum*, because each of them arise with three Heads; two from the first, second, fourth, and fifth, transverse Processes of the Chest, and the third from the Ridge of the seventh *Vertebra* of the Neck. All which uniting together, are inserted into the Noll-bone.

The third Puller back of the Head, or fourth Pair, called *Parvum crassum*: These are situated under the former, arising nervous from the transverse Processes of the six uppermost *Vertebræ* of the Neck, but afterwards becoming fleshy, are carried obliquely upward, and are inserted into the hindermost Root of the *Processus Mammillaris*. When these act singly, they incline the Head lightly backwards to one side; but when they act together, they bring it streight backwards.

The *Rectum majus* and *Rectum minus*, which make up the fifth and sixth Pair, are seated one under the other, and are both inserted into the Noll, assisting the fourth Pair in their Action.

The *Obliquum superius*, which is accounted the seventh Pair, arise from the middle of the transverse Processes of the first *Vertebra* of the Neck; their Use being to nod the Head backwards.

The last Pair, called *Obliquum inferius*, take their Origin from the Spine or Ridge of the second *Vertebra* of the Neck, and forming an oblique Course, terminate in the transverse Processes of the first *Vertebra*, being of use to move the Head semicircularly. Now the Reason why there are so many Muscles appointed to move the Head backwards, is because of its great Bulk and Weight; by which means it is of itself prone enough to incline forward and downward, so that it wants not only a Stay, but requireth a greater Force to move it upward or backward.

The Muscles common to the Head and Neck are in number four Pair, as has been observ'd. *Those common to the Head and Neck.*

The first call'd *Spinatum*, because they are seated among the Spines of the *Vertebrae*, take their Rise from the Root of the Spines of the seven uppermost *Vertebrae* of the Chest, and five lowermost of the Neck, and are inserted into the whole lower side of the Spine of the second *Vertebra* of the Neck. Their Office is to bend the Neck backward, or a little obliquely.

The next Pair is call'd *Transversale*, because they both arise, and are inserted into the transverse Processes of the *Vertebrae*, arising from those of the uppermost *Vertebrae* of the Chest; and being inserted into the outsides of all the transverse Processes of the Neck-bones. Their Use is the same with the first.

The third Pair, called *Longum*, lie hid under the Gullet, arising from the Body of the fifth and sixth *Vertebrae* of the Back, and reaching the highest *Vertebra* of the Neck, into which they are inserted. Their Use is contrary to the first two Pair, bending the Neck forward when they act together, and when they act singly, to one side.

The last Pair is called *Triangulare*: These are seated forward on the sides of the Neck, having some Perforations, by which Veins, Arteries, and Nerves, pass out of the Body into the Fore-legs.

§. VII. *Of the Muscles of the Breast.*

Having briefly run over the Muscles which serve to move the Head and Neck, we come now to those of the Breast, which actuate the Chest, whereof four Pair widen and dilate it, and two Pair contract it. *The Breast widened and depressed by four Pair.*

The first of those which serve to widen the Breast are call'd *Subclavium*, from their Situation under the Clavicle, or Collar-bone. These arise from under that Bone, and are implanted into the first Rib near the Breast-bone, drawing the first Rib upwards and outwards. *The four Pair that widen the Breast.*

The second Pair, called *Serratum majus anticum* (from the resemblance their Tendons have to the Teeth of a Saw) arise from the inside of the Shoulder-blade and the two upper Ribs, and are inserted into the lower five true Ribs and two

two upper short Ribs, so that their Breadth takes up a great part of the side of the Chest. These co-operate with the first Pair in widening the Chest, as do also the two following Pair, viz. the *Par serratum posticum superius*, rising from the Spines of the three lower Rack-bones of the Neck, and first of the Back, and being inserted into the *Interstices* of the upper Ribs; and the *Par serratum posticum inferius*, taking their Origin from the Spines of the three lowermost *Vertebrae* of the Back, and first of the Loins, and having their Insertions into three or four lower Ribs, before they run cartilaginous.

These four Pair, together with the Midriff, and the widening *Intercostal* Muscles, dilate the Chest in Inspiration, that is to say, in drawing in the Breath; and the two following Pair, to wit, the *Triangulare* and *Sacrolumbum*, with the Internal and *Intercostals*,

The two Pair that depress the Breast.

depress the Chest in Expiration, or letting forth the Breath. The triangular Pair having their Rise from the middle Line of the Breast-bone on its inside, and their Insertion into the bony ends of the third, fourth, fifth, and sixth true Ribs: And the other Pair taking their Origin from the *Os Sacrum* and Spine of the Loins, and having their Insertion into the lower side of all the Ribs, about three or four Fingers Breadth from the Ridge of the Back.

§. VIII. *Of the Muscles of the Back and Loins, with those of the Fundament and Bladder.*

Four Pair common to the Back and Loins.

The Muscles of the Back and Loins are usually reckon'd four Pair, which are common to both.

The first go by the Name of *Longissimi*, from their extraordinary length, being the longest of the whole Body, and endu'd with most Strength. They arise from the *Os Sacrum* and Haunch-bone, and passing by the Ridge of the Loins, Back, and Neck, they reach to the Mammillary Processes of the Temple-bones. They are almost confounded with the *Par sacrolumbum*, and the *Semispinatum*, in their Passage thro' the Loins, but arriving towards the Back, they again part with them, and appear to be distinct from them. When both act together, they extend the Back and Loins, but when they act singly, they incline the Spine to one side. They are of further Use to most Creatures, but

but especially to Beasts of Burden, being a Bar and Stay to the whole Back.

The *Par quadratum*, or second Pair, so called from their Figure, being square when join'd together, tho' triangular when separate. They arise broad, thick, and fleshy from the backward and upper Cavity of the Haunch-bone, and from the inner and upper side of the *Os Sacrum*, and are inserted into all the transverse Processes of the *Vertebrae* of the Loins. Their Use is to bend the Racks of the Loins with a right Motion forward or downward, but when one only acts, it draws the Loins to one side somewhat downwards.

The third Pair, arising from the *Os Sacrum*, are therefore called *Par sacrum*; they spring from that part of the said Bone where the Spine is fasten'd, ending in the Spine of the lowest *Vertebra* of the *Thorax*; but at the same time having in their Passage several Insertions into divers of the Spines and oblique Processes of the *Vertebrae* of the Loins. If these act separately, they pull the Body a little on one side; but when both act together, they extend that part of the Spine to which they are fasten'd.

The last Pair, call'd *Semispinatum*, arise with a nervous Original from all the Spines or Ridges of the *Os Sacrum* and Loins, and are inserted into the transverse Processes of the Loins, and some of the lowermost of the Chest. When all these Muscles of the Back and Loins work together, the whole Back is extended; but if the Muscles of that Side alone, the Body is then inclin'd to that Side.

The *Anus* hath three Muscles, two call'd *The Anus three*
the *Levators*, and one nam'd its *Sphincter*. *Muscles.*

The Sphincter is seated at the Extremity *Its Sphincter.*
of the streight Gut, encompassing it all round like a Ring. It is attach'd to the lower *Vertebrae* of the *Os Sacrum*, compos'd of circular Fibres, being of use to contract the Orifice of that Gut, as has been observ'd in another Place.

The two *Levators*, or Lifters up of the *The two Levators.*
Fundament, are small, broad, and nervous, arising from the Ligaments of the Hip-bones and *Os Sacrum*, from whence, passing by the Sides of the Gut, they adhere to it, and are inserted into the upper part of the Sphincter; a Portion of them also growing to the Root of the Yard, and in Mares to the Neck of the *Matrix*. Their Use is to assist the Muscles of the lower Belly

in the Expulsion of the Excrement, which they do by lifting up the Fundament.

The Sphincter of the Bladder.

The Bladder has also its Sphincter, which is composed of circular Fibres, as that of the Anus; and in like manner serves to constrict or purse up its Neck, that the Urine may not pass without a spontaneous relaxing of that Muscle. In Mares, it is seated at the Hole where the Neck of the Bladder opens into the *Vagina*.

Having already taken notice of the Muscles belonging to the Yard, called its *Erectoris* and *Dilatoris*, and the *Cremaster* Muscles, by which the Stones are suspended, as also those of the *Clitoris* in Mares, I shall therefore pass them by in this place, and proceed to the Shoulder-blade, &c.

§. IX. *Of the Muscles of the Shoulder-blade and Shoulder, with those which move the Fore-leg and Foot.*

The Shoulder-blade four Pair.

The Shoulder-blade has four Pair of Muscles, agreeable to its four several Motions.

The first Pair, called *Cucullares*, from the resemblance they bear to a Monk's Hood, are seated between the two Shoulder-blades, covering the top of the Withers. These arise thin and fleshy from the hind-part of the Head, but as they pass down the Neck, have other membranous beginnings from five of its Spines, and from eight or nine of the uppermost of the Chest, and are inserted into the whole Spine of the Shoulder-blade, as also into the Shoulder-bone, and broader part of the Collar-bone. When the upper part of this Muscle is contracted, then the Shoulder-blade is thought to be moved somewhat obliquely upwards, because of the oblique Direction of its Fibres; but when that part which springs from the Withers is contracted, it is then pulled straight thitherward.

The second Pair are called *Levatores* or *Lifters*: They are situated above the Collar-bone, arising from the transverse Processes of the first four *Vertebrae* of the Neck, and are inserted into the fore-corner of the Shoulder-blades; these draw the Blades upwards and forwards.

The third Pair, named *Serratum minus Anticum*, lie under the pectoral Muscles, and spring from the four uppermost Ribs, before they turn gristly, by four fleshy Portions, representing the Teeth of a Saw, and are inserted into the Anchor-like Process of the Shoulder-blade: These move the Shoulder-blades forward towards the Chest.

The

The last Pair, called *Rhomboïdes*, are seated under the *Cucullares*, and take their Origin from the hinder Proccesses of the three lowermost Spines of the Rack-bones of the Neck, and from the three uppermost of the Chest, and are implanted into the *Basis* of the Shoulder-blades, their Use being to draw them somewhat upwards and backwards.

The Shoulder has five several Motions perform'd by nine Muscles, to wit, backwards, downwards, and circularly. *The Shoulder, nine Muscles.*

But before I proceed to a Description of its Muscles, it will be proper to intimate, that although the Shoulder-blades in Horses are generally taken for part of the Shoulder, yet Anatomists have always distinguished between the Shoulder-blade and Shoulder, accounting that Part only to be the Shoulder, which is joined to the Shoulder-blade, and reaches towards the Elbow.

The first of its Muscles is called *Deltoides*, *Two Erectors.* from its Figure resembling the Greek Letter

Δ. It arises fleshy from the midst of the Collar-bone, the top of the Shoulders, and the whole Ridge of the Shoulder-blade, and is inserted in the middle of the Shoulder-bone. This Muscle not only raises up the Shoulder, which is its chief and principal Use, but by the various Direction of its Fibres it assists in other Motions, but especially in that which is circular.

The second Erector of the Shoulder, is named *Supraspinatus*, because it fills all that Cavity which is between its Spine and upper Edge. It arises from the Spine of the Blade, with a long and fleshy Beginning, and is inserted into the Neck of the Shoulder-bone by a strong and broad Tendon.

The *latissimus* and *rotundus Major* are the two Depressors of the Shoulder; the first is so called from its Breadth; for, with its fellow, it almost covers the whole Back. It arises from the tops of all the Spines of the Rack-bones that are between the sixth *Vertebra* of the Chest, and the middle of the *Os Sacrum*, as also from the upper part of the Haunch-bone, and is inserted below the upper head of the Shoulder-bone lengthways. *Two Depressors.*

The second *Depressor*, which is the fourth Muscle of the Shoulder, called *rotundus Major*, takes its Origin from the lower *Costa* of the Shoulder-blade, and is inserted into the upper and inner-part of the Shoulder-bone. The Use of this, and the last described, is to pull the Shoulder downward.

*Two Pair which
bring the Shoul-
der forwards.*

The two Pair of Muscles which bring the Shoulder forward, are called the one by the Name of *Pectoralis*, and the other *Coracoideus*. The *Pectoralis* is so called from its Situation on the fore-side of the Breast. It arises from the middle of the Collar-bone; its middle proceeds from the whole Length of the Breast-bone, and the Ends of the Gristles of all those Ribs which terminate in it; and its lower Part springs from the sixth, seventh, and eighth Ribs. Its Insertion is with a broad and sinewy Tendon into the Shoulder-bone, a little below its Head.

The *Coracoideus* has its Beginning from the *Processus Coracoides*, from whence it reaches to the middle of the Shoulder-bone, where it terminates. The Use of this and the former is to draw the Shoulder forward.

*Three move it
backward.*

The following three Muscles, to wit, the *Infraspinatus*, *Subscapularis*, and *Rotundus Minor*, move the Shoulder backward.

The *Infraspinatus* arises from the Basis of the Blade below its Ridge, and is inserted by a broad and short Tendon into the fourth Ligament of the Shoulder-bone.

The *Subscapularis* is seated between the *Scapula* and Ribs, and is inserted into one of the Ligaments of the Shoulder; and the *Rotundus Minor*, which arises from the lowest Corner of the *Scapula*, is implanted into the Neck of the Shoulder-bone.

As to the circular Motion of the Shoulder, that is not perform'd by any single Muscle, but by several of these already named, acting successively one after another, which is easily enough to be conceived by those who carefully observe their Origins and Insertions, and the various Directions of their Fibres. But we shall now proceed to those that move the Fore-leg and Foot.

*Two Muscles
bend the Fore-
leg.*

The Fore-leg is bended by two Muscles, to wit, the *Biceps* and *Brachii Internus*.

The *Biceps*, so called from its double Head or Beginning, arising partly from the upper brim of the Shoulder-blade, and partly from the Anchor-like Process of the same Bone. This Muscle becometh strong and fleshy, and runs all along the inside of the Cubit-bone to the Knee, where it is inserted. Its Office is to bend the Cubit forward and somewhat inwards.

The second, or *Brachii Internus*, so called in Man from its Situation on the inside of the Arm, and may pro-

properly enough retain the same Name in a Horse. This takes its Beginning near the Insertion of the *Deltoides*, after which it runs its Course as the former, and is inserted into the fore-side of the Cubit-bone a little above the Knee, and is assisting to the former.

Two Muscles also extend the Cubit, and *Two extend it.* these are seated on its hind-part; the first is called *Longus*: It takes its Origin from the lower Rib of the Blade-bone, and descending along the hinder part of the Shoulder-bone, is inserted into the outside of the Cubit-bone, towards the Knee. This draws the Leg backwards, and somewhat outwards, and thereby stretches it out straight.

The second is called *Brevis*, from its shortness; raises it from the hinder part of the Neck of the Shoulder-bone, and holding the same Course with the first, it is inserted also with it, and assists it in its Motion.

There are, besides these, two other Muscles, *Two Assistants.* which give their assistance in extending the Cubit, to wit, the *Brachæus Externus*, and *Anconæus*; but *Spigelius* and others have thought the one to be only part of the *Longus*, and the other a part of the short Muscle; and therefore have left them out.

These are all the Muscles that move the fore Leg of a Horse, falling somewhat short of the Number of those which move the Arm of a Man, by reason a Horse has only one single Bone in that Part, whereas there are two in the Arm of a Man, to wit, the *Cubit* and *Ulna*, which serve to turn the Arm and Hand round; which kind of Motion is not any ways necessary for a Quadruped.

The Shank, which somewhat answers to *Two bend the* the *Metacarp* in a Man, has the same *Shank.* number of Muscles with the fore Leg, viz. two *Extensors*, and two *Flexors*.

The first of the *Flexors*, or *Benders*, is called *Cubitæus Internus*; it arises from the inner Knob of the Shoulder-bone, and is implanted into the inner and hinder Sides of the top of the Shank. The second may be called the *Cubitæi interni socius*, or *auxiliarius*, as having the same Rise, Progress, and Insertion with the other.

The Extenders of the Shank are the *Cu-* *Two extend it.* *bitæus externus*, and its fellow, which take their Origin from the outer Knob of the Shoulder-bone, and are inserted into the outer and fore-side of the head of the Shank.

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The next Joint is the great Pastern, answering to the first Joint of the Finger in a Man's Hand, as the little Pastern does to the second, and the Coffin-Joint to that on which the Nail grows, all which are bended and extended as the former.

*The Pasterns,
&c. bended by
two Muscles.*

The first Bender of the Pasterns and Coffin-Joint is called *Sublimis*; it springs from the inner Knob of the Shoulder-bone, and is inserted into the Pasterns.

The second is named *Profundus*, arising from the upper part of the Cubit-bone, and bending its Course down to the Coffin-Joint, into which it is inserted.

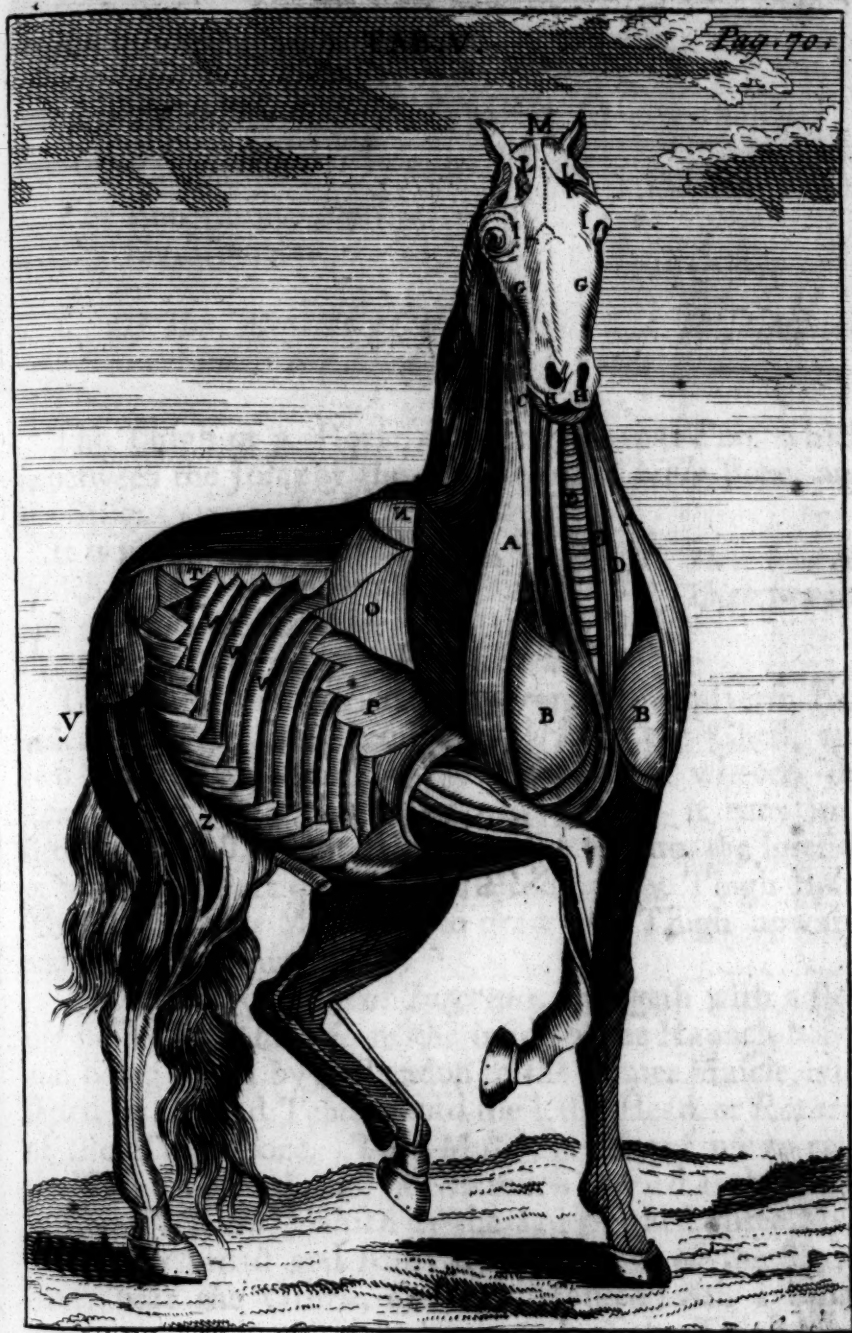
*Extended by
two.*

They are extended by one considerable Muscle, called *Extensor Magnus*. This springs from the outer Knob of the Shoulder-bone, and is inserted into the fore and outer Parts of the Pastern and Coffin-Joint.

Lastly, The Muscle which answers to that called *Palmaris* in a Man; it arises fleshy from the inner Knob of the Shoulder-bone, but presently grows into a slender Tendon, which descends to the Sole of the Foot.

TABLE V. Represents a Horse standing with his Face towards us, that one may have a full View of all the Muscles that appear on his Fore-parts.

- AA. *Show the Par Mastoideum.*
- BB. *The Muscles of the Scapula, or Shoulder-blade.*
- CC. *The Par Trigemini, or Complexum.*
- DD. *The Par Triangulare, or Scalenum.*
- E. *The Windpipe in its natural Situation.*
- FF. *The Par Longum removed from under the Gullet.*
- GG. *The Pair of the Nose, called Philtrum.*
- HH. *The closing Muscles of the Nostrils.*
- II. *The Muscles of the Eyelids.*
- KK. *The Temporal Muscles.*
- LL. *The Muscles of the Ears.*
- M. *The Frontal, or Forehead Muscles.*
- N. *The Cucullaris, or Monk's Hood.*
- O. *The Deltoides of the Shoulder.*
- P. *The Serratus Major Anticus shrunk up.*
- QQ. *The Pectorals.*
- R. *The oblique descending Muscle of the lower Belly, shrunk from the Serratus Major.*
- S. *The*





CHAP. V. *The Anatomy of a HORSE.* 71

S. *The Deltoides of the Thigh, so called by Mr. Snape.*

T. *The Serratus Posticus.*

VVV. *The external Intercoſtal Muſcles.*

VXY. *The three Buttock Muſcles.*

Z. *The Vaſtus Externus.*

a. *The Sacrolumbus.*

b. *The Longiſſimus Dorſi,*

c. *The Semiſpinatus.*

§. X. *Of the Muſcles of the Thigh, and thoſe which move the hind Leg and Foot.*

The Thigh of a Horſe comprehends that Part which is between the Joint of the *Huckle*, or *Whirle-Bone*, and the *Stifle*.

It is mov'd by ſeveral Muſcles, the firſt of which are called the Benders of the Thigh, and are in number three, viz. the *Pſoas*, the *Iliacus Internus*, and *Pectineus*. *Three bend the Thigh forward.*

The firſt of theſe ariſes fleſhy from the tranſverſe Proceſſes of the two lowermoſt *Vertebræ* of the Cheſt, and two or three uppermoſt of the Loins, from whence, deſcending by the inſide of the *Os Ileum*, it ends in a ſtrong round Tendon, which is inſerted into the foreſide of the upper Part of the leſſer Head of the Thigh-Bone. The Uſe of this Muſcle is to draw the Thigh upward, and ſomewhat inward.

The ſecond, or *Iliacus Internus*, ſpringeth with a ſlender fleſhy Beginning from the inſide of the Haunch-bone; and being join'd by its Tendon to the former Muſcle, is inſerted by a round Tendon into the leſſer Head, or *Rotator* of the Thigh-bone. This Muſcle is alſo of uſe to raiſe the Thigh upward, tho' not ſo much inward as the other.

The *Pectineus*, which is the laſt of theſe three Muſcles, ariſes broad and fleſhy from the Line of the Share-bone, near the Griſtle, and is implanted with a broad and large Tendon into the lower end of the Thigh-bone. This draws the Thigh upward and inward, and is that Muſcle which, in Men, helps to lay one Thigh over the other.

This Muſcle, and all thoſe that follow, excepting the two laſt, are inſerted into the lower end of the Thigh-bone, juſt above the *Stifle*; whereas in Men they are moſt, or all of them, inſerted into its proper Part, either at its

Neck, or into one or other of the two Knobs at the lower end of its Neck, called the great and lesser *Trochanters*. Mr. *Snape* thinks the reason of this Difference is owing to the shortness of the Thigh-bone of a Horse, compar'd with that of a Man, whereby his Muscles being very plump and bulky upon its Buttocks, it was necessary they should have some Space to grow more slender, and become tendinous; and therefore, he says, they are extended as far as the Stifle, which answers to the Knee in Man. But this is also owing to the different Action of the Thigh of a Horse from that of a Man, which manifestly requires its Muscles to have a lower Insertion.

As there are three Muscles which bend the Thigh forwards, it has the same Number to bend it backwards.

Three bend it backward.

The first is called *Glutæus Externus*, or the most outward Buttock Muscle; it arises with a fleshy Beginning from the Crupper, the Ridge of the Haunch-bone, and from the *Os Sacrum*, and passing over the Joint of the Huckle-bone, it ends in a strong and broad Tendon, which is inserted above the Stifle into the inner Part of the Thigh-bone. Its Use is to extend the Thigh, and enable an Horse to go backward.

The next is called the *Glutæus Medius*, lying in a Man directly under the other, but in a Horse side by side with the other. It rises from the Spine of the Haunch-bone, a little higher than the other, and from thence descends obliquely over the Joint of the Hip, and is inserted into the lower end of the outerside of the Thigh-bone. Its Use is to extend the Thigh, and to draw it outward and backward, as when a Horse stands to stale.

The third and last of the Extenders is called *Glutæus Minor*, or lesser Buttock Muscle; it arises round and fleshy as high as the former, and descending obliquely over the Joint of the Hip, to the lower end of the Thigh-bone, is inserted somewhat towards its fore-side. This assists the other in its Action.

The Thigh is mov'd inwards by the *Tri-*
Moved inwards by one Muscle. *ceps*, or, according to some, the *Quadriceps*, from its having four Heads; the first Head rising nervous from the upper part of the Share-bone, and descending to the inside of the lower end of the Thigh-bone. The second beginning fleshy at the lower side of the same Bone, and ending a little higher than the former.

The

The third arising partly nervous and partly fleshy, from the under side of the *Coxendix*, is inserted near the last. The fourth, having a like Origin from the top of the *Coxendix*, runs along the inside of the Thigh, and ends in a round Tendon; which joining with the Tendon of the first part of this Muscle, has the same Insertion with it.

The Thigh is also turn'd outwards by four small Muscles, called *Quadrigemini*, *And turn'd outwards by four.* all which are placed one by another, upon the outside of the Articulation of the Thigh. The first is the longest, and takes its Origin from the lower and outer part of the *Os Sacrum*; afterwards, passing over the great *Rotator*, it is inserted into the outside of the lower end of the Thigh-bone.

The second and third arise both of them from the Knob of the *Os Ischium*, near each other, and are inserted with the first.

The fourth is more fleshy than the rest, arising from the inner part of the Knob of the *Ischium*, and terminating with the former: To these must be added the *Deltoides* of the Thigh, which spring from the outside of the tip of the *Ileum*, with a sharp beginning, but growing triangular, is inserted with a broad membranous Tendon into the outside of the Thigh-bone; by its Situation it seems to assist the Action of the *Quadrigemini*.

But lastly, the Thigh is turn'd obliquely by two Muscles called *Obturatores*, or *Stoppers*. *Turn'd obliquely by two.* The first is called *Obturator Internus*, and takes its Origin from the inner Circumference of the Hole abovementioned, and is inserted into the Cavity of the great *Rotator*. The *Obturator Externus*, from the external Circumference of the said Hole, and is inserted in the same Cavity with the former.

The Leg has three several Motions peculiar to it, *viz.* it is bended, extended, and turned obliquely outwards; to perform all which Motions, there are the same number of Muscles in Horses as in Man, only that some of them are different from those in Men, with respect to their Insertions.

It has first of all five Muscles, called *Extenders*, of which the first is named *Membranosus*; and by some the *Fascia Lata*, *The Leg is extended by five Muscles.* because it involves and covers almost all the Muscles of the Thigh. This Muscle rises fleshy from the upper part of

of the *Os Ileum*, near the great Process of the Thigh-bone, and covering the whole Thigh and the Stifle, over which it crosses, it is at last inserted into the fore and upper part of the Bone of the Leg. Its Use is to extend the Leg directly; or, according to some, to draw it obliquely outwards.

The second is called *Longus*, arising from the upper part of the Appendix of the *Os Ileum*; and passing obliquely down the Thigh, it is inserted into the Bone of the Leg, a little below the Stifle. This Muscle not only extends the Leg, but also helps to draw it inwards; for which reason, some Authors reckon it one of the Benders of the Leg.

The third is called *Rectus*, from its straight Course: It takes its Beginning from the lower brim of the Haunch-bone, and descends straight down the fore-side of the Thigh, until it reaches the Stifle, where it turns into a strong and broad Tendon; and adhering to the *Patella*, in its Passage over it, it is at last inserted into the fore-side of the upper part of the Shank.

The fourth is named *Vastus Externus*, because of its great bulk; it arises from the Root of the great *Trochanter*, and from the Neck of the Thigh-bone, cleaving close to its outside, until it arrives at the Stifle, where, becoming membranous and broad, and uniting with the Tendon of the straight Muscle, it is inserted into the same Place with it, but on its outside.

The last, or *Vastus Internus*, rises from the Root of the lesser *Trochanter*, and descending down the inside of the Thigh-bone, it unites itself with the former two, after it has passed over the Stifle, and is inserted with them into the same Place of the *Tibia*. These three last describ'd Muscles, joining together at their crossing the Stifle, form one broad and strong Tendon, which involves the *Paletta*, or Knee-bone of the Stifle, and ties it so firmly, that it is almost impossible for it to be displac'd.

The Benders of the Leg are in number *Bended by four.* four, viz. the *Biceps*, the *Seminembranosus*, the *Seminervosus*, and *Gracilis*.

The *Biceps* rises sharp and nervous from the Appendix of the *Coxendix*, and passing along the outside of the Thigh, is inserted into the outside of the *Appendix* of the *Tibia*, or Leg-bone; this bends the Leg, by pulling it backward.

The next, according to *Bartholin*, (who follows the Order in his Description of those Muscles) is the *Semi-membranosus*, which takes its Beginning from the Knob of the *Coxendix*, as the other, and running down the back-part of the Thigh, is inserted into that part of the Leg-bone, which in Man is call'd the Ham.

The third is called by the said Author *Seminervosus*, being partly nervous and partly fleshy, as the other is partly fleshy and partly membranous. It has the same Origin with the other two; but descending obliquely towards the inner part of the Thigh, it reaches to the middle of the Leg-bone, into whose inner Part it is inserted.

The fourth is called *Gracilis*, being slender; it arises with a nervous beginning, from the middle of the Share-bone, and descending along the inside of the Thigh, is inserted near the other. When these Muscles act together, they draw the Leg directly backward; but when they act singly, some being placed more outward, and some more inward, they then bend the Leg either to this or that side.

But besides these, there is another called *Poglitæus*, which moves the Leg obliquely. *Moved obliquely by one.* This rises broad and nervous from the outer Head of the Thigh-bone, and going obliquely down the Thigh, is inserted in the back-part of the upper Knob of the *Tibia*.

We come now to the Muscles which move the lower part of the Leg and Foot; and here it will be necessary to take notice, that by the lower part of the Leg is to be understood, that Space which reaches from the Hock to the great Pastern; which, *Mr. Snape* says, is answerable to the Instep in Men, as the great Pastern, and little Pastern, answer to the first and second Joints of the Toes; and the Coffin-Joint to that whereon the Nails do grow.

The Instep is bended by two Muscles, to wit, the *Tibiæus Anticus*, and *Peronæus Anticus*. *The Instep bended by the Muscles.* The first arises sharp and fleshy from the upper Appendix of the Leg-bone, cleaving close to it in its descent, and passing under the Gristle of the Hock, is divided into two or more Tendons, that are inserted into the fore-side of the Instep-bone, which, with the rest of the Foot, it moves forward and upward.

The second is called *Peronæus Anticus*, tho' improperly in a Horse, who wants that Bone which in Man is named *Perone*, or *Fibula*. This takes its Origin from the upper Appendix of the *Tibia*, or Leg-bone, and is inserted into the outside of the Instep-bone, which, with the rest of the Foot, it moves forward and somewhat outward.

The Foot extended by three Muscles. The Foot is also extended or drawn backwards by three Muscles, the first is called *Gastrocnemius Externus*; and is that Muscle which, in Man, forms the Calf of the

Leg. It takes its Rise from the inner head of the Thigh-bone, and part of it from the outward head of the same Bone, and afterwards uniting together about the middle of the Leg, they there turn into one strong Tendon, which being united with that of the following Muscle, to wit, the *Gastrocnemius Internus*, are both inserted into the Heel-bone.

This Muscle lieth somewhat under the former, arising from the hinder part of the upper end of the Leg-bone, and is inserted as aforesaid.

The last Extender of the Foot is called *Plantaris*, or the Muscle of the Soal or Tread; it arises fleshy, round, and slender, between the former two, taking its Origin from the back-part of the lower head of the Thigh-bone, and in its descent soon becomes a slender round Tendon; which, joining very closely with the Tendons of the former two, passes down to the Heel-bone, where it leaves them, and proceeds along the back-part of the Instep-bone, and the two Pasterns, terminating within the Foot all over the bottom of it, making that part of the Foot which lies next under the Soal, and plainly appears when the Soal is drawn out. The Tendons of these three Muscles joining together, form that great Sinew called *Magna Chorda*, by which the Butchers hang up their Meat.

Moved sideways by two Muscles. The Foot is also moved somewhat sideways, to wit, inward and outward, by two Muscles.

The first is called *Tibialis Posticus*, having its Origin from the upper end of the Leg-bone, and its Use being to move the Foot obliquely inward.

The second, called *Peronæus Posticus*, arises from the upper and hinder part of the Leg-bone, by a nervous and strong Beginning, and descending with the Tendon of the *Peronæus Anticus*, on the outside of the Hock, continuing its Course beyond it to the bottom of the Foot, into which





AA. 2
B. Th
C. Th
DDD.
EE. 2
F. Th
GG. 2
HHH.
I. The
K. Th
L. Pa
M. Th
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O. Th
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R. Th
S. The

it is implanted. This moves the Foot contrary to the former, viz. obliquely outward.

The Pasterns and Coffin-Joint are likewise bended, and extended by their proper Muscles.

The Benders are in number two, viz. the *Flexor Longus*, and *Flexor Brevis*. The first arises from the upper and hinder part of the Leg-bone, and descends on the inner side of the Hoof, down the Instep-bone and Pasterns, into the Coffin-Joint. The second takes its Origin from the inside of the Heel-bone, a little below the Hock, and has the same Insertion with the former. These bend the Pasterns and Coffin-Joint backward.

The Extenders are also two, the first called *Extensor Longus*, and the other *Extensor Brevis*: The one rising from the inner side of the Shank, just under the Stifle, is inserted into the fore and upper part of the Coffin-Joint. The other rising from the fore-part of the *Annular Ligament*, that binds about the Instep-Joint, and descending under the former, has the same Insertion. These two extend the Pasterns and Coffin-Joint, by drawing them forward.

T A B. VI. Represents the hind-part of a Horse, with his Muscles.

- AA. *The Cucullaris, or Monk's Hood.*
- B. *The Edge of the Deltoides of the Thigh.*
- C. *The Glutæus Minor, or lesser Buttock Muscles.*
- DDD. *The Glutæus Medius.*
- EE. *The Glutæus Major, or greater Buttock Muscle.*
- F. *The Biceps.*
- GG. *The Seminervosus of both Legs.*
- HHH. *The Lividus, or Pectinals of both hind Legs.*
- I. *The Semimembranosus.*
- K. *The Orbicularis, or Orbicular Muscle of the Lips.*
- L. *Part of the Longissimus Dorsi.*
- M. *The circular Muscle of the Nose.*
- N. *The Sphincter of the Fundament.*
- O. *The Mastoides.*
- P. *The Manforius of the Cheeks.*
- Q. *The Triangularis.*
- R. *The Complexus, or Trigemini.*
- S. *The Transversalis Colli.*

T. *The*

T. *The Spinatus Colli.*V. *The Vastus Externus.*WW. *The Gastrocnemius Externus.*X. *The Peronæus Anticus.*Y. *The Peronæus Posticus.*

C H A P. VI.

Of the Bones.§. I. *Of the Bones which frame and compose the Skull, with its Suture.**The Skull.*

THE first and uppermost Part of the Head is the Skull, called by Anatomists the *Cranium*, from its office of covering the Brain like a Helmet. It is composed of nine Bones, three of which are common to it, and the upper Jaw; which are the Wedge-like Bone, the *Os Jugale*, or the Yoke-like Bone, and the *Os Cribiforme*, or Sieve-like Bone. The other six are proper Bones, and make up the Skull itself; and these are the *Frontal*, or Forehead-bone, the *Occipital*, or Noll-bone, the two Bones of the *Sinciput*, or *Parietal*-bones, and the Temple-bones, within which are contain'd the small Bones of the Ear, which, with the two *Orbicular*-bones, make up the Number of seventeen Bones peculiar to the Skull.

Its Sutures, or Seams.

The larger Bones are distinguish'd by several Seams, called *Sutures*, both which and the Bones are of the same number in a Horse as in Men, only that they are different in Shape and Figure.

Some of these *Sutures* are proper to the Skull alone, and some are common to it and the upper Jaw. They are also distinguish'd into those that are true, and those that are false; such as are indented one into another, being of the first kind; and such as are plain and linear, like two Boards glued together, being accounted of the second kind, or only false *Sutures*.

Its true Sutures.

The true *Sutures*, are three in number, and proper to the Skull only, viz. the *Coronal*, *Lambdoidal*, and *Sagittal*.

The

The *Coronal*, so called because the Antients were wont to wear their Crowns or Garlands on that Part. The Suture, as in Men, so likewise in a Horse, runs athwart the Skull above the Forehead, reaching on each side to the Temple-bones, and joining the Forehead-bone to the *Sinciput*.

The second, *Lambdoides*, because of its resemblance to the Greek Letter Λ . This is seated on the hind part of the Head, being opposite to the other, beginning at the bottom of the *Occiput*, and descending above the Ear somewhat higher than in Men. It joins the Bone of the *Occiput*, or hind and under part of the Skull, to the Bones of the *Sinciput* and Temples.

The third begins at the middle of the *Lambdoidal* Suture, dividing the two Bones of the *Sinciput*, and is therefore called the *Sagittal* Suture; but in Horses, and many other Quadrupeds, it crosses the *Coronal* Suture, as in Children, quite down to the Nose. This Suture in a Horse is not so much indent as the other two, but is in a great measure straight and linear.

The false Sutures are in number two; *Its false Sutures.* the first passes from the Root of the *Processus Mammillaris* with a circular Duct, returning down again towards the Ear, encompassing the Temple-bone.

The second runs obliquely downwards, arising from the top of the former, and passes to the Socket of the Eye, and the Beginning of the first common Suture.

The Sutures which are common to the Skull, the Wedge-like Bone, and upper Jaw, are chiefly these three that follow, to wit, *Those common to the Skull and upper Jaw.* the *Frontal*, the *Wedge-like* Suture, and the *Cribriform*: The first being that by which the Process of the Forehead Bone is join'd with the first Bone of the upper Jaw; the second that by which the Wedge-like Bone is join'd with the first Bone of the same Jaw; and the third that Suture, which is common to the Wedge-like Bone and the *Septum*, or Partition of the Nose.

The Sutures are of use, not only as they divide the Bones which compose the Skull, but also as they afford a free Ingress and Egress for the Vessels which supply Life and Nourishment to the Parts contained within the Skull, and likewise as they give a Passage to those little Fibres, by which the *Dura Mater* is kept suspended: And further, they are of use in case the Skull should at any time happen to be broke, that any such Fracture or Fissure might

might not run through the whole Skull, but be stop'd at the end of the fractured Bone; whereas if it was not for these Seams, it might with one Blow be shiver'd all in pieces like an earthen Pot. But I shall now return to the Bones.

*The Frontal
Bone, with its
Cavities, &c.*

The *Frontal* or Forehead Bone, which I have already taken notice of, as the first proper Bone of the Skull, is seated before, and makes the fore-part of the Skull. It is bound-ed on its fore-part by the Coronal and first common Suture, on the sides by the Temporal Bones, and on its inside by the *Ossa Spongiosa*, or spongy Bones. Between its *Lamina* or Plates, there is a double Cavity, from whence there is also a double Passage into the Nostrils, distinguished by many bony Fibres, and small Scales, which are encompassed with a green Membrane, and contain a soft, medullar, or rather oily Substance. These are proportionably larger in a Horse than in a Man, and have various Uses ascribed to them, being thought by some to assist in the Office of Smelling, by intangling the odoriferous Air; by some, to promote the Shrilness of the Voice; and by others, to be a Receptacle for some Portion of the excrementitious Matter, which is separated from those Parts.

Besides these Cavities, there is a *Sinus* or Den on each side, called the *Frontal Sinus's*, compos'd of a double Scale; one making the upper part of the Orbit of the Eye, and the other forming the Cavity above the Eyes, on either side, which is not very plain, having only Inscriptions answerable to the winding Convolutions of the Brain. This Bone has also two Holes, which go to the Orbit of the Eye, whereby the first Branch of the Nerve of the fifth Conjugation goeth to the Muscles of the Forehead. It has likewise four Processes, two of which are seated at the greater Corner of the Eye, and the other two at its lesser Corner, helping to form the upper part of the Orbit.

The Bones of the *Sinciput* are next to the Frontal, being joined to it by the *Coronal* Suture, and behind to the *Occipital* Bone by the *Lambdoidal* Suture, on each side, to the Temple-Bones, by the *Suturæ Squamosæ*, or scaly Sutures, and by one of the common Sutures to the Wedge-like Bone. They are also joined one to the other, by the *Sagittal*, or Arrow-like Suture.

Their Figure is somewhat square, and though their Substance is thinner than that of the other Bones of the Skull, yet they are also made up of two *Laminae*, excepting where they

they are joined to the Temple-bones. They are smooth on their outside, but inwardly uneven, having several Cavities to which the *Dura Mater* adheres, by the sides of the *Sagittal Suture*; as also several long and winding Incriptions, or Furrows, form'd by the Branches of the *Internal Jugulars*, in their passage to the Brain. These Bones have also several Perforations; some of which go quite through, others piercing only the upper Table, for the entrance of those Vessels which run between its Plates.

The *Occipital*, or Noll-bone, which makes the hinder and lower part of the Head and middle of the Basis of the Skull, is the hardest of all the Bones of the Skull, excepting the *Os Petrosum* of the Temple-bones, being very thick at bottom, where the two *Sinus's* of the *Dura Mater* are joined. At the sides of the great Perforation, through which the Spinal Marrow descends, it is somewhat thin; but that its thinness might be no prejudice to it, it is strengthen'd by a large Prominence, which ascends from the said Perforation quite to its upper part. By this Prominence the two Protuberances of the *Cerebellum* are also distinguished.

*The Knoll-bone,
with its Parts.*

This Bone is in a Horse five-corner'd, and has several Channels, or *Sinus's*, two of which, being pretty large, receive the Protuberances or Bunchings of the *Cerebellum*, or After-brain; others receive some of the Convolutions of the Brain itself, and some, the two *Sinus's* of the *Dura Mater*, that they might not be compressed or hurt for want of a proper Cavity to lie in.

It has also divers Processes, four of which, being covered with a smooth Gristle, are received into the *Sinus's* of the first *Vertebra* of the Neck; but that which goes between the Protuberances of the *Cerebellum*, is the most considerable. It is perforated in five places, for the passage of several Vessels, besides the large Hole through which the *Medulla* goes into the Spine of the Neck.

The last of the proper Bones of the Skull, are the Temple-bones, which are seated on each side of the Head, reaching to the bottom of the Ears. Their Figure is on their upper sides semicircular, but below they are rugged and unequal, like a Rock; from whence, and from their hardness, the Temple-bone has also obtained the Name of *Os Petrosum*. These Bones are very thick at their bottom,

*The Temple-
bones, with
their Processes
and Sinus's.*

but grow extremely thin upwards, lying like two Scales on the lower edge of the Bones of the *Sinciput*.

They have each of them two *Sinus's*, the outermost being the largest, is lined with a Gristle, and receives the longer Process of the lower Jaw. The other, or inward Cavity, is common to the Temple-bone and Noll-bone. There are also four Processes belonging to each Temple-bone, *viz.* that which in Man is called the *Processus Styloides*, or Pen-like Process, though improperly in a Horse, it being but short. The next is called the *Processus Mammillaris*, being somewhat shap'd like a Nipple. The third passing forwards from the Hole of the Ear to the Protuberance of the first Bone of the upper Jaw, and being joined to the last, forms the *Os Jugale*, or Yoke-bone. The fourth is the *Processus Petrofus*, or hard and uneven part of the Temple-bone; this, being internal, jets out a pretty way into the inside of the bottom of the Skull, within which there are two Perforations; one to give a Passage for an Artery, another for the Auditory Nerve, into the inner Cavities of the Ear, to wit, the *Tympanum*, *Labyrinth*, and *Cochlea*.

This Process has also on its outside three Perforations, or Holes; the first called the *Meatus Auditorius*, or Auditory Passage: The second is that thro' which the *Jugular* Vein enters into the inner Cavities: The third is seated between the *Mammillary* and *Styloid* Processes, ending in that Passage that goes from the Ear to the Mouth. As to the little Bones that are contained in the Cavities of this Process, *viz.* the *Incus*, *Malleus*, *Stapes*, and *Os Orbitale*, which, with those already describ'd, make up the whole Number of the Bones proper to the Skull; having taken notice of them already in another place, I shall therefore pass on to those which are common to the Skull and upper Jaw; and these are in number three, namely, the *Os Sphenoides*, or *Wedge-like* Bone, the *Sieve-like* Bone, and the *Yoke-like* Bone.

The Wedge-like Bone. The *Wedge-like* Bone is so called from its being placed like a Wedge between the Bones of the Skull and the upper Jaw; it is joined before to the *Frontal-bone*, and behind to the *Occipital*, its sides to part of the *Petrosum* above, and below to some of the Bones of the upper Jaw and Palate.

It has several Processes, some external, and some internal; as also divers Cavities, two of which are common to it and the Temple-bones, and the Bones of the *Sinciput*. Its Holes are about seven on each side; one of which gives a Passage
to

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to the *Optick* Nerve, the rest are penetrated, some by one, and some by several Parts of Nerves; others by the *Carotid* Arteries and *Jugular* Veins; and again, others both by Nerves and Blood-vessels.

The *Os Cribriforme* is the next Bone common to the Head and upper Jaw, and is so called from its innumerable little Holes, which make it like a Sieve. It is situated in the fore and under side of the Skull, between and a little below the Sockets of the Eyes, and at the upper part of the Nostrils, and is joined by an even Line to the Forehead-bone, the second of the upper Jaw, and the Wedge-like Bone.

It is made of four Parts, viz. the *Crista Galli*, or Cock's-comb, to whose sharp *Appendix* the *Falx* adheres. The second Part is that which is perforated, and makes up the greatest Portion of it. The third is only a Process of its under side, by which the Nostrils are divided: And the fourth is called the *Os Spongiosum*; its Cavities being filled with a spongy sort of Flesh. This Bone helps to make up the Corner of the Orbit of the Eye, and through its Holes gives a Passage to the innumerable *Fibrillæ* of the Auditory Nerves.

The last is the *Jugale*, or Yoke-like Bone, *Os Jugale*. and is composed of two Bones; one of which is a Process of the Temple-bone, and the other a Process, of the first Bone of the upper Jaw, forming the lower side of the lesser and outer Corner of the Orbit of the Eye.

§. II. *Of the Jaw-bones and Teeth, together with the Os Hyoides, or Bone of the Tongue.*

Besides the Bones which are common to the Skull and upper Jaw, there are twelve, viz. six on each side, which are proper to the upper Jaw alone, and are those which frame the lower side of the Orbit of the Eye, the Nose, Cheeks, and Roof of the Mouth.

The first is called *Zygomaticum*, because its Process makes up a part of the *Os Jugale*: It composes the lower part of the outer Corner of the Eye.

The next is seated in the inner Corner of the Orbit of the Eye, and is called *Lachrymale*, because it has in it a Cavity which contains the *Lachrymal* Gland. This Bone has also a Perfora-

The Os Cribriforme, or Sieve-like Bone.

Twelve Bones proper to the upper Jaw, viz.

The first, Zygomaticum, with its fellow.

The second, Lachrymale.

tion into the Nostril, through which a Nerve of the fifth Pair passes to the inner Membrane of the Nose.

The third.

The third is seated in the inner side of the Orbit of the Eye, and is continued with the fungous Bones of the Nostrils. This Bone is joined to four Bones, *viz.* to the Forehead Bone, to the Wedge-like Bone, to the last described, and the next following, and is not distinguish'd by any peculiar Name.

The fourth, Os Malæ.

The fourth is called the *Os Malæ*, or Cheek-bone. This Bone composes the greatest part of the Cheek, as also of the Palate; and moreover contains all the upper Teeth in its lesser Cavens. It is much the largest of all the Bones of the upper Jaw, and is circumscribed with divers Sutures, being joined above to the Frontal Bone on the side next the Nose, below to the Wedge-like Bone, and the Bone of the Palate of the Mouth, before to the *Lachrymal* Bone, and one of those Bones that make the upper part of the Nose, as also to the Cheek-bone on the other side. It has also three Perforations, two of which are under the Orbit of the Eye, for the passage of two Branches of the Nerves that are bestowed on the Face; and the third, for the passage of a Vein and Artery, which go to the Nostrils. This Bone has likewise a great Den or Cavern on each side, in that prominent Part which stands out under the Orbit of the Eye, and on each side of the Nose; when there happens to be Matter pent up in this Cavity, it occasions intolerable Pain, by reason of a very fine and sensible Membrane, which lines its inside.

The fifth, which makes the Prominence of the Nose.

The fifth Bone of the upper Jaw, with its Companion, makes up the bony Prominence of the Nose. It is hard and solid, and is perforated in several places, for the Passage of Nerves and Blood-vessels. It is joined above to the internal Process of the Frontal Bone: Its sides adhere to the first and fourth Bone of this Jaw, in the middle to its Companion, and underneath to the Gristles that make the lower part of the Nose.

The last, with its Companion, frame the Roof of the Mouth.

The last is that Bone which, with its Companion, frames the Roof of the Mouth: It is broad, thin, and solid, but somewhat rough and uneven at that end where it resembles a Semi-circle. It is joined behind to the Wing-like Processes of the Wedge-like Bone; and on the inside to the Partition of the Nostrils. It is also joined to the Cheek-bone,

bone, and to its back-part. It has likewise two Perforations, one on either side, which have Communication with the two Holes of the Wedge-like Bone.

The lower Jaw, which makes the lower part *The lower Jaw,*
of the Capacity of the Mouth, comes next *with its parts.*
to be treated of. This differs from the former, in that it is moveable, whereas the other is not. At both ends of it there are two Processes, the foremost of which running upwards, and from a broad Basis growing sharp, ends in a Cone or Point. It is this Point that receives the Tendon of the Temporal Muscle; from whence it is, that a Luxation of the lower Jaw is very dangerous, if not speedily reduc'd.

The other, which is the backward Process, is call'd *Articularis*; having a Neck and a longish Head covered with a Gristle, by which it is receiv'd and articulated into the *Sinus* of the *Os Petrosum*, and it is strongly knit thereto by a membranous Ligament. It hath, at the sides of those Processes, small, shallow Cavities, for the lodgment of its Muscles. Towards its back-part it hath a Cavity within it, which contains a marrowy Juice for its Nourishment. It has also four Perforations or Holes, whereof two are at the Roots of the Processes, by which a Vein and Artery, as also a Branch of the fifth Pair of Nerves, do pass to the Teeth. The other two are in its fore-part, giving way to two Twigs of the said Branch, which go out to the lower Lip.

But the lower and upper Jaw have Sockets for the Teeth to stand in, which, by reason of their Depth, have been called *Alveoli*: When any of the Teeth fall out, as the *Foal-teeth*, &c. these Pits soon become obliterated, and the Jaw grows smooth.

The Teeth are of a Substance harder than *The Teeth.*
any of the other Bones, which is absolutely necessary, considering their Office is to break and cut all the Aliment. That part of them which stands out above the Gums, is smooth, and free from any Covering, but all within the Sockets of the Jaws is more rough, and covered with a thin Membrane of exquisite Sense. Those which are called *Grinders*, have a manifest Cavity within them, but the Fore-teeth and Dog-teeth have but very obscure ones. By the small Holes which are discernable in the Roots of the Teeth, is conveyed into these Cavities a capillary Branch of an Artery from the *Carotids*, a small Vein from the *Jugulars*, and a Twig of a Nerve from the fifth Pair; which being expanded through the thin Membrane
G 3 that

that invests the said Cavity, is partly the Occasion of that exquisite Pain which is felt in the Tooth-ach. These Vessels beforemention'd, namely, the Vein, Artery, and Nerve, are inclosed in one common *Capsula*, or Sheath, when they enter the Jaw, and running along a proper Chancel under the Roots of the Teeth, send off to each of them, in their Passage, those small Twigs aforesaid.

Though the Teeth of Horses are differently situated from those in Men, and are also more numerous, yet as to their Offices, they admit of the same Division, and are of three Kinds; namely, the *Incisores*, *Canini*, and *Molares*.

The Incisores. The *Incisores*, Cutters or Shredders, are those we call the Fore-teeth, being seated in the fore-part of the Jaw. They are broad and sharp-edg'd, the better to crop and bite off the Grass: They are in number twelve; six on each Jaw. These have but one Root, or Fang.

The Canini. The next are the *Canini*, or Dog-teeth, which in Horses are called the *Tushes*; and are of use to break whatever is too hard for the Fore-teeth to cut or shear asunder. These have also but one Fang, and are seldom to be found in Mares.

The Molares. Those of the third Rank are the double Teeth, and are named *Molares*, or Grinders, because they grind the Food like a Millstone: They are in number twenty-four, twelve on each Jaw; their Seat is in the inner part of the Mouth, being environ'd on their outside by the Cheeks, to prevent the Food falling out of the Mouth while it is a grinding. These have several Asperities on their upper part, by which means they are render'd more fit for their peculiar Use.

Those by which the Age of a Horse is known. The two foremost of these Teeth, which stand next the Tushes, are those by which a Horse may be known to be under seven Years old; having till then several thin Shells, or Scales growing round the outside of the top of them, forming a hollow in the middle. And it is to be observed, that the nearer a Horse comes to that Age, the more those Edges are worn down, till at last they become even with the rest; so that the Age of a Horse is no more to be known by that Sign.

The several Periods of a Horse's Age, while only a Colt, are also distinguishable by the Fore-teeth; but these Things being sufficiently known by every one who has been used among Horses, I shall therefore proceed to the Bone of the Tongue, That

That Bone is called *Hyoides*, from its shape, being like the Greek Letter ψ (*Ypsi-lon*). It is seated at the Root of the Tongue, being the Foundation or Supporter of it. It is made up of three Bones, the middlemost being gibbous outwards, but inwards somewhat hollow: The other two are call'd its *Cornua*, or Horns, and are all ty'd to the adjacent Parts by a Substance which is partly nervous, and partly fleshy.

The Os Hyoides, or Bone of the Tongue.

This little Bone is of great use; all the Muscles that move the Tongue being either inserted into it, or taking their Origin from it. It also gives Rise to some of those Muscles that move the *Larynx*, or Throttle, and is a resting Place to the *Epiglottis*, or Throat-flap, when it is lifted up in breathing.

§. III. *Of the Vertebrae of the Neck.*

The Neck is made up of seven *Vertebrae*, or Rack-bones, reckoning from the Head downward, that next the Head being the first; they have each of them a large Cavity, to give way to the Spinal Marrow: And besides this large Hole, which they have in common with all the other *Vertebrae*, they have each two small Perforations in their *transverse* Processes, thro' which the Cervical Veins and Arteries do pass to the Head; and between their Joinings there is a third found, partly out of the lower side of the upper *Vertebra*, and partly out of the upper side of each lower *Vertebra*, by which the Nerves pass outward from the Spinal Marrow.

The Vertebrae of the Neck.

The first of these Bones, in a human Skeleton, is called *Atlas*, because the Head is articulated to it, and, as it were, supported by it; and may therefore retain the same Name in a Horse. Its Body is slender, but more solid than the tips of its Processes, which are porous and open; instead of its hinder Spine or Process, it has only a semicircular Prominence jetting out, lest the larger streight Pair of Muscles, which pass over it, should be hurt in bending the Head forwards; but it has all its other Processes in common with the rest. On the fore-side of its great *Foramen* inwards, it has a small Socket somewhat semicircular, and lin'd with a Cartilage, to receive the Tooth-like Process of the second *Vertebra*.

The first is called the Atlas.

The second *Vertebra* is because of this Process called *Dentata*; it is an Appendix,

The second, Dentata.

which springs from between its two descending Processes, long and round, its Head resembling the upper part of the Dog-tooth in Man, or the Tush in a Horse. It is also covered with a Cartilage on that part which is received into the foresaid *Sinus* of the first *Vertebra*; upon it the Head turns round, as upon a Hinge. The Basis of this Tooth-like Appendage is encompassed with a Ligament that knits it to the *Occiput*. This and the following *Vertebræ* have Spines, or hinder Processes, each of which are divided into two, for the better Connexion of the Ligaments and Muscles to them; and are, in every respect, like the second, save only that their lateral Processes are larger, and divided as well as the hinder.

§. IV. *Of the Vertebrae of the Back and Loins, as also of the Breast-bone, Collar-Bones, and Ribs.*

Those of the Back and Loins.

The Back is made up of seventeen *Vertebræ*, or Rack-bones, which are somewhat different, both in their Bodies and Processes, from those of the Neck, the last being longer and more flat on their inside, that the Gullet might rest more securely on them; and as for their Processes, tho' they are equal in number, *viz.* two tending obliquely upwards, and two tending obliquely downwards, two transverse, or lateral ones, and one acute hinder one, called the *Spine*; yet those which are now to be describ'd, have their Spines, or hinder Processes single, and not divided, and their lateral ones more short and blunt; and instead of the Holes which are in those of the Neck, have only a shallow Cavity, into which the Ribs are articulated.

Neither are the Bodies of these *Vertebræ* of such a firm and solid Make as those of the Neck, tho' they are more bulky; besides that they are full of small Perforations, for the Admission of Blood-vessels to the Spinal Marrow, and have each two Holes at their Joinings, for the Egress of the Nerves which proceed from thence.

They have also on each side a *Sinus*, or Cavity, for the Inarticulation of the head of the Rib, which *Sinus's* are wanting in those of the Neck, having no Communication with any other but among themselves.

The transverse Processes of two or three of the lowest of these Rack-bones grow gradually shorter, and their Spines more blunt and even, declining not so much downwards

wards as those more forwards. As for the great Perforation in their middle, it is proportionable to their size, and the Marrow contain'd within it.

The *Vertebræ* of the Loins, which compose the third part of the Spine, come next to be consider'd. They are in Number seven; and are bigger than any of the foregoing; their hind Processes, or Spines, grow shorter, but are broader and thicker than those of the Back, somewhat bending upwards, as most of the other decline downwards; but as to their internal Processes, they exceed those of the Back in length: They are joined one to another by a clammy Gristle, as also the uppermost of them to the last of the Back, and the lowest to the first of the *Os Sacrum*, by the same kind of Articulation. These have also several Perforations, for the Ingress and Egress of Nerves and Blood-vessels, as also a large Cavity in each for the Spinal Marrow.

Directly opposite to the upper *Vertebræ* of the Back, is seated the *Sternum*, or Breast-bone, which is very different in a Horse from what it is in a Man, being, in all human Skeletons, flat in its outside, and pretty straight; whereas in our present Subject, it is not only somewhat arched, but in its middle is prominent and sharp, like the Keel of a Ship, being also hollow on its inside. This Bone in Foals, as in Children, seems to be made up of divers Cartilages, which in time become so united, as to leave no Marks of their ever having been divided.

In its upper part it is pointed and sharp, whereas its lower part is somewhat blunt and obtuse, terminating in a Gristle called the *Cartilage Ensiformis*, or Sword-like Gristle. Its Use is to serve as a Safeguard to the Breast, as also for the Articulation of the Collar-bones; and the nine uppermost Ribs having on each side nine little *Sinus's*, or Cavities, for that purpose.

The Collar-bones, which are the first that are united to the Breast-bone, are in number two, one on each side; they are called *Claviculæ*, either because they resemble the antient Keys, which were in shape like an *Italian s*, or because they lock up and close the Chest: Their heads are spongy and open, but their middle somewhat thin and flat, and somewhat more solid; by one end they are joined to the top of the Breast-bone, and by the other to the first Rack-bone of the Back, differing

fering from those in Man, which are joined with the Shoulder. They help to support the Shoulder-blades, and keep them from sliding forward upon the Breast-bone and Shoulder-bones, which, upon a Fracture, or Dislocation of these Bones, frequently happens.

The Ribs.

Next the Collar-bones are seated the Ribs. They are in all thirty-four, *viz.* seventeen on each side. Their Substance is partly bony, and partly cartilaginous. The nine uppermost are called the true Ribs, because each, with its fellow, makes a kind of Circle, being joined together by the Mediation of the Rack-bones of the Back behind, and the Breast-bone before; each Rib has two Knobs, one of which is receiv'd into the *Sinus* of the Body of the *Vertebra*, and the lesser Knob into that of the transverse Process; they are in like manner joined to the Breast-bone, their Cartilages ending in little Heads, which are received into its smooth *Sinus*'s.

The eight lowermost are call'd the Bastard-ribs, because they don't circumscribe the Body, as the uppermost do, by their twofold Articulation into the Rack-bone, and Breast-bone. They are of a more soft and pliable Substance than the true Ribs, and the nearer they advance towards the Loins, they grow shorter, leaving an open Space for the Stomach and Guts, which might have easily been hurt by them, as often as distended with Meat and Water.

They are all rough and uneven on their outside, especially towards the Back, that the Ligaments, by which they are tied to the Rack-bones, might take the firmer hold; but on their inside they are smooth, and cover'd with the *Pleura*, lest they should hurt the Lungs, and the other Parts that bear against them. They are also narrow and thick towards the Back, but broader and flatter towards the Breast, and are furrowed on the lower part of their inside, in which some Blood-vessels and a Nerve are conducted. They are a Defence to the Bowels within the Breast, and likewise to those in the lower Belly.

§. V. *Of the Blade-bone, the Shoulder-bone, and the Bones of the fore Leg and Foot.*

The Blade-bone.

The Blade-bone, or Shoulder-blade, is seated like a Target upon the side of the true Ribs, reaching from the *Vertebrae* of the Back almost to the Collar-bone. On its inside it is somewhat concave

and

and hollow, but arched on its outside : It is joined to no Bone but by its lower end, where it has a Cup that receives the round head of the Shoulder-bone : It is, however, knit to several Parts by the Muscles which are inserted into it, or take their Origin from it. It has three Processes, the first is that part which forms its Neck ; the second is extended along the middle of its outside, and is called its Spine. The third is towards its lower and inside, and from the resemblance it has to an Anchor, is called *Anchoroides*, or its Anchor-like Process.

It has also about its Neck five Appendages, three of which afford an Original to some Muscles, and from the other two arise the Ligaments by which the head of the Shoulder-bone is tied into its Cup. Round its brim there is a thick Gristle, which not only makes its Cavity the deeper, that the head of the Shoulder-bone, which is joined into it, should not so easily slip out, but also facilitates its Motion.

The Shoulder-bone has two Heads, the uppermost inserted into the Cup of the Blade-bone, and the lowermost joined to the upper part of the *Cubit*, or Leg-bone.

The Os Humeri, or Shoulder-bone.

The uppermost Head is large and orbicular, covered with a Gristle, and is, at first, only an Appendix to the *Cubit* : but, in time, becomes a Process of the Bone itself ; on the outside of this orbicular Head there are two lesser Prominencies, into which two Ligaments are inserted ; and on its inside there is a Cavity, out of which arises the strong Ligament that ties it into the Cup of the Blade.

The lower Head of this Bone, which in a human Body is articulated with two Bones, *viz.* the *Radius* and *Ulna*, is in a Horse only united to one ; yet it is so firmly coupled to that one, that it cannot be easily displac'd ; for there being three Processes, and two *Sinus*'s, between it and the *Cubit*, they both receive, and are received of each other : And besides these Processes, which serve to its Articulation, there is on each side one, from whence arise the Muscles which lie on both sides of the Leg. About its middle there is a Perforation, by which the Blood-vessels have recourse to and from the Marrow contained within its large bore, and are those by which it is nourished.

The next Bone, call'd the *Cubit*, or Leg-bone, reaches from the Elbow to the Shank.

The Cubit, or Leg-bone.

This Bone has, on its hinder and upper part, a notable Pro-

Pro-

Process, long and round, which enters the larger Cavity of the lower Head of the Shoulder-bone, and makes that bunching out which is usually call'd the Elbow; this Process is somewhat rough and uneven, partly that the Ligaments that encompass the Joint might be the more strongly knit to it, and partly for the Origination and Insertion of the Muscles which serve to move those Parts, for which cause the Bone is rough at the Root of this Process, as also the whole Circumference of the *Sinus*, into which it is inserted.

The seven small Bones seated between the Leg-bone and Shank.

Between this and the Shank-bone, there are Ranges of little Bones, one above another, three in the first Range, and four in the second, all which are very firmly joined together. These differ one from another in their Magnitude, Forms, and Situation, and are said to be first cartilaginous, but that in process of time they grow hard and bony. Their Substance is spongy, as are all those which at first are only cartilaginous; of which kind are the Appendages of Bones, the Breast-bone, and the like. They are covered with a Ligament which is partly membranous, and partly cartilaginous, whereby they are so compacted, that without dividing the said Ligament, it is hard to distinguish them one from another, but at first view they may be all taken for one Bone.

On their outer Surface they are somewhat bunching, but on their inside they are hollow. The first that is placed on the inside of the upper Rank, is somewhat longish, and curved inwards, articulated with the Cubit-bone, and below with the second of the lower Rank, touching both the third and fourth of the same Rank, and join'd to the second of its own Rank. The second has a Cavity on its upper part, which receive an Appendix of the Cubit-bone. The third is join'd above, by a plain Surface, to the said Cubit-bone, and with the second is join'd underneath, to the fourth Bone of the lower Rank. The fourth Bone, or first of the lower Rank, is round and smooth, and is join'd above to the outside of the lower part of the first Bone, and below to the Shank-bone. The fifth has on its upper part a large *Sinus*, into which the first Bone of the upper Rank is articulated, and another below for Reception of part of the Head of the Shank-bone. The sixth is join'd with a plain Superficies on each side, to the seventh, and the foregoing above to the second, and below to the Shank-

Shank-bone. The seventh is join'd on its upper end to the third of the upper Rank, and below to the head of the Shank-bone, and on its inside to the foregoing, to wit, the sixth.

These Bones are of use, not only to facilitate the Motion of the Knee, but also to strengthen it; for by their convex outside, the Joint can never be extended too far the contrary way, and the Number of the lower Rank exceeding that of the upper Rank, (as the upper end of the Shank-bone is broader than the lower end of the Cubit) and as the Bones themselves are somewhat different in their size from each other, like a piece of good Mason-work, they cannot easily be pull'd asunder; whereas if the Bones of both Ranks were of one size and number, and their Seams and Junctures to run streight through, it would be impossible but every the least false Step must disorder them in such manner, as to occasion an irrecoverable Lameness. As to their Motion, although, by this sort of Articulation, they seem as if they were incapable of any singly; yet it is very certain, the whole have a small tendency inward, as often as the Shank is bended, though that be scarcely discernable, and by virtue of the cartilaginous Ligament, which covers all those little Bones, and ties them together, they recover themselves as with a spring; so that the Motion of that Joint must be more easy and quick, than it could possibly be by any other kind of Articulation.

Their Use.

But it would oblige me to go beyond the Limits of this short Abridgment, if I should explain the Mechanism of the Bones; I shall therefore proceed to the Shank-bone, which comes next in order, and that which reaches from the Knee to the great Pastern, and answers to the Back of the Hand in Man. As that consists of five Bones, the Shank-bone of a Horse is made up of three, having one much larger and longer than either of the other. It is join'd, by its upper part, to the lowermost Range of the small Bones, and below to the upper end of the great Pastern, by a reciprocal Articulation, having two round Heads, and three small Cavities, whereby these two Bones both receive, and are received into each other, as the lower end of the Shoulder-bone and the upper end of the Cubit.

The Shank-bone.

To each side of this Bone is fasten'd a Splint, in shape like a Bodkin, being thick and round at the upper end, but

but small and pointed at the lower ; between these do run the Tendons of the Muscles that move the Foot.

The great Pastern. The next is the great Pastern. This Bone is gibbous and crooked on its upper part, where it is articulated with the Shank-bone ; it has three small Processes, which are received into the Cavities of the said Shank-bone ; and two Cavities, which also receive its two Processes, and has also two small triangular Bones fasten'd to its back-part, whereon the Footlock Hair does grow ; these two Bones are a Stay to that Joint, which Articulation, being like a Hinge, would be apt to strain the Ligaments every time a Horse should stumble.

The little Pastern. The little Pastern is not much unlike the other, only that it differs in its Length ; its upper end is articulated with the great Pastern, and its lower end consists of two Heads, as that of the great Pastern, which are received into the Coffin-bone, in the same manner as itself receives the lower end of the great Pastern.

The Coffin-bone. The Coffin-bone, which is the lowermost of all the Bones of the Leg, is so called from its hollowness. It is somewhat semilunary, or Half-moon fashion'd, thick upwards, where its Cavities receive the lower end of the little Pastern ; but thin and broad at its bottom, towards its edges, for its more firm fixing upon the Ground. Its Substance is open and porous, having innumerable little Holes through its sides, for the Passage of the Vessels ; as also many small *Sinus's*, wherein are inserted the Tendons of the Muscles that move the lower part of the Leg and Foot.

§. VI. *Of the Croupe, and Rump-bone.*

The Os Sacrum, or Croupe. The *Croupe*, or the Bone which lies under the Crupper, otherwise called the *Os Sacrum*, is seated at the lower end of the Back, and adheres to the last *Vertebra* of the Loins above, and below to the first of the Bones of the *Duct*, or Rump : It is much the broadest of all the Bones of the Back, of a Figure somewhat triangular, growing from a broad beginning, narrow towards the first Bone of the Tail ; it is hollow on its inside, but uneven outwards, because of the Muscles of the Back, and its Ligaments cleaving to it. It has hardly any oblique Processes but on its

its first *Vertebra*, and its other Processes are either very small or very obscure. On each side, towards its edges, there are certain *Sinus's* to which the Haunch-bones adhere, by an intervening Cartilage. It has six *Vertebrae*, its Spines grow gradually less, the nearer they approach the Rump, as the *Vertebres* themselves do also. The Spinal Marrow has likewise a Passage in it, as in the other *Vertebrae*, out of which there are several lesser Perforations for the egress of the Nerves.

The Rump-bones are in number eighteen, *The Rump, or Tail.* and are joined to each other by an intervening Cartilage, or Gristle; but so loosely, that a Horse can move his Tail which way he pleases; these have no hollowness in them, only the uppermost has a small Cavity that receives the Process from the last Bone above described; they are soft and spongy, and therefore the better adapted to Motion, as they are also from their Make, growing gradually less, until they end in a small pointed Cartilage.

§. VII. *Of the Offa Innominata, divided into the Hip, Haunch, and Share-bones.*

The *Offa Innominata* are seated on the sides of the *Os Sacrum*. The first is called the *Os Ilium*, because the Gut *Ilium* lies under it; it is *Os Ilium.* the uppermost and broadest, and is joined with the *Os Sacrum* by a true Suture; it is somewhat semicircular, being convex and uneven on its outside, which is called its *Dorsum*, or Back and Concave, and even on its internal side, which is called its *Costa*; and that part by which it is joined to the upper *Vertebrae* of the *Os Sacrum*, is called its *Spine*, or Edge.

Its Spine is, in many places, rough and uneven, there being several Muscles that take their Origin from it, as also from its *Dorsum*, or back-part, which is in like manner accommodated for the same purpose.

The second is called the *Os Pubis*, or *Os Pubis.* Share-bone, which forms the inferior and fore-part of the *Offa Innominata*; it is joined to its fellow by an intervening Cartilage, and forms the fore-part of that Cavity, in human Bodies, and is called the *Pelvis*, or Basin. It is perforated with a very large Hole, and on its inner and hinder side, has two Processes, from whence the cavernous Bodies of the Yard, and some Muscles, take their Original.

The

The Ischium, The third is the Inferior and Posterior, or *Coxendix*. called the *Ischium*, or *Coxendix*. It has a large Cavity, which receives the head of the Thigh-bone. This Cavity has its Circumference tipp'd with a Cartilage, call'd its *Supercilium*, or Brow, where there are several *Sinus's*, or Protuberances, ordained particularly for the Production of Muscles, and partly for Ligaments.

In all young Animals these may be divided into several Bones; but in such as are old, the Cartilages, by which they were at first only join'd, change their Nature, and become bony, by which means they grow united, and make but one Bone.

§.VIII. *Of the Bones of the Thighs, hinder Legs, and Feet.*

The Thigh-bone. The Thigh-bone is that which reaches from the Hip to the Stifle; it is long and round, and, in some Parts, a little convex: Its upper part is made up of a large Head and Neck, with two Processes, and below it determines into a Head, which has two Productions, with a Cavity between them.

Its upper Head is round, and somewhat longish, that it may the better fill up the *Acetabulum*, or Cup, which of itself is deep, but the more so, as it is encompass'd with a Cartilage. There is also a thin Cartilage which covers the round head of this Bone, that its Motion may be glib and easy within the Cup; and because of the great Weight which the Thigh sustains, it is therefore tied by two strong Ligaments, one of which is round, arising from the inside of the *Acetabulum*, near its bottom, and implanted into a little *Sinus* on the upper and fore-part of the said head of the Thigh-bone; and the other, proceeding from the edge of the *Acetabulum*, by the Assistance of a membranous Substance, incloses the whole Articulation.

The slender Part, under the head of the Thigh-bone, is called its Neck: It is pretty long and oblique, and is accounted a Process of the Bone. There arise, at the lower end of the Neck, two other Processes, which go by the Name of the greater and lesser *Trochanters*. The uppermost, or larger Process, is rough, because of the Insertion of some Muscles into it. The undermost is also somewhat uneven, especially towards its Root, where the *Vastus Internus* rises. A late Anatomist has observ'd, that those Protuberances increase mightily the force of the Muscles,

by

by removing not only their Insertions, but likewise their Directions from the Centre of Motion.

The Thigh-bone below its middle becomes thicker, its lower end terminating in an ample and broad Head: This Head is form'd into two Processes, betwixt which there is a large Space that receives a Protuberance of the Head of the Leg bone. The outside of these two Processes is rough, but their inside is smooth, being covered with a Cartilage, for the more easy Motion of the Joint. From them proceed some of the Muscles that move the Leg, and into them are inserted some of those that move the Thigh. Their sides are full of small Holes, from whence arise the Ligaments that strengthen the *Patella*, or Stifle.

In the middle, between the two Heads, there are two Cavities, the foremost of which receives the Protuberation of the Stifle-bone, being covered with a Gristle for that purpose. The other, which is deeper, is also rough and unequal, receives the Protuberation of the Leg-bone. Besides these, there is a Cavity on the outside of the outer Head, and another on the inside of the inner Head, thro' both which the Tendons of the several Muscles of the Leg descend.

Where the lower end of the Thigh-bone is joined to the upper end of the Leg-bone, on the fore-side is placed a small Bone, somewhat round, called the *Patella*, or Stifle-pan; it is plain without, but on its inside it is a little convex, having a Ridge which falls between the Juncture of the two Bones; its inside is covered with a Gristle, and its outside with the broad Tendons of some of those Muscles that extend the Leg, which keep it firm in its place, by adhering closely to it. This Bone not only strengthens the Articulation of the Thigh and Leg, but also serves as a Pulley for the Tendons of the Muscles which pass over it; and facilitate their Action, by removing their Direction from the Centre of Motion.

The *Tibia*, or Leg bone, to which the Thigh-bone is articulated, comes the next to be describ'd. In a Horse it is very different from what it is in Men, being long and round, and not triangular, as in the latter; its upper part is much broader and thicker than its lower, and both receives and is received by the Thigh-bone, having two Cavities, and betwixt them a Prominence, which is also covered with a Cartilage,

tilage, as all the other Appendages of the Joints are. Within the Cavities of this Joint there is always to be found an unctuous or oily Matter, which is separated to further the Motion thereof, by keeping it moist and slippery. Its lower Head is round, and likewise covered with a Gristle, to facilitate the Motion of the Instep.

This Bone has several *Sinus*'s and Appendages, as well as the Thigh-bone, not only for the Passage of the Tendons of some Muscles, but also to give rise to others which move the Foot; and has likewise a considerable Bore, which reaches from the upper to the lower Appendage, and is filled with Marrow, to keep it moist, and preserve it from becoming too brittle.

The small Bones of the Hock. The Bones of the Hock are in number the same with those in the Knee, and are likewise disposed in two Ranks, *viz.* three in the first Rank, and four in the undermost. They are also articulated with the Instep, as the others are with the Shank, only that they are seated in the bending of the Joint. These Bones are of use to hinder a Horse from falling upon his Hams, when he raises himself upwards, and goes upon his Haunches; and are also like a Spring to that Joint, by which he recovers himself in all Actions where the hind Legs are chiefly concern'd.

The Instep. The Instep-bone, to which these small Bones are articulated, is made up of three Bones, which adhere so closely together, that they can hardly be separated or distinguish'd, until the *Periosteum* is very clean scraped off; and are much the same as those of the Shank already describ'd. The Pasterns and Coffin-bone, &c. agreeing also, in every respect, with those of the fore Foot, I shall therefore omit mentioning them in this Place. But before I leave this Subject, it will, no doubt, be expected I should take some notice of the Hoofs, they being also a hard Substance, and a very great Defence to a Horse's Foot.

The Hoofs. The Hoofs of a Horse, are those Parts which answer to the Nails in human Bodies, and are no other than a Bundle of Husks, which cover and sheath the *Papillæ Pyramidales* of the Skin, on the Extremities of the Feet, which dry, harden, and lie close one upon another. They are of a middle nature, between Bones and Gristles, that they may not splinter and break because of their hardness, and at the same time be able



TAB. VII



to bear and support so great a Burden without much damage; and are without Sense, that they may endure travelling among Stones and rough Ways. They adhere pretty firmly to the Parts included within them, and are fasten'd to the Coffin-bone by a Ligament that proceeds from their Root, which is also, in some measure, encompass'd with the Skin.

Underneath the Hoofs there are many Twigs of Nerves, and Tendons, and Muscles, which take their Course quite to the Sole of the Foot. When these are prick'd or bruis'd, they occasion exquisite Pain. But of this when we come to treat of the Diseases incident to the Feet.

TABLE VII. Represents the Skeleton of a Horse.

AA. *The Shoulder-blade.*

B. *The Breast-bone.*

CC. *The Skoulder-bone.*

DDDD. *The Bones of both fore and hind Legs.*

EEEE. *The small Ranges of Bones, which make the Knee and Hock.*

FF. *The Shank-bones.*

f. f. *The Instep-bones.*

GGGG. *The Bodkin-like, or Splint-bones.*

HHHH. *The great Pasterns.*

III. *The little Pasterns.*

KKKK. *The Coffin-bones.*

LLLL. *The small triangular Bones, that adhere to the upper end of the great Pasterns.*

MM. *The Os Ilium, or Haunch-bone.*

N. *The Coxendix, or Hip-bone.*

OO. *The Patella, or Stifle-pan.*

RRR, &c. *The Cartilages at the end of the Ribs.*

SSS, &c. *The seventeen Ribs.*

TTT, &c. *That Part of the Ribs where they are articulated into the Vertebrae of the Chest.*

V. *The Os Hyoides, or Bone of the Tongue.*

W. *The lower Jaw.*

X. *The upper Jaw.*

Y. *The Noll-bone.*

From 1 to 17, are the seventeen Vertebrae of the Chest.

From 1 to 7, the seven Vertebrae of the Loins.

From 1 to 6, the six Processes of the Os Sacrum.

From the Cypher 1 to 18, are represented the eighteen Bones of the Rump or Dock.

I, II, III, IV, V, VI, VII. Shew the seven Vertebrae, or Rack-bones of the Neck.



The A P P E N D I X.

*Concerning the
Blood-vessels,
and Circulation
of the Blood, &c.*

AFTER a short Description of the Parts which compose and make up the Body of a Horse, it cannot be thought unnecessary to add some Things in general, concerning the Way and Manner by which an animal Body is sustain'd and nourish'd, and thereby render'd fit to perform the several Functions of Life. I shall therefore sum up this Abridgment with a brief Account of the *Circulation* of the Blood, and its Distribution into all Parts of the Body. And in order thereunto, I shall not only study Brevity, but endeavour to make the Discourse as easy and intelligible as possible, beginning with the Aliment, and throughout the whole following the Order of Nature; that those who have not had the Opportunities of Study, may reap some Benefit by it.

The Chyle.

As soon as an Animal gathers in his Food, the Glands of the Mouth pour forth their Liquor, not only that it may be the more easily chew'd, but that it may be thereby render'd soft, and more readily pass through the Gullet into the Stomach. When it has arriv'd there, several Instruments become assistful to Digestion. The Juices which flow from the Glands of the Stomach, and the Drink, help to keep it moist; so that by the continual Action of its Sides, which, by virtue of its muscular Fibres, perpetually rub one against another, and by the Assistance of the inclosed Air, all the Parts and Particles of the Food are greatly separated. The grosser Parts are carried downwards by the Peristaltick Motion of the Guts, the Pressure of the Midriff and Muscles of the lower Belly, and are voided at the Fundament, while the finer Parts constitute that white milky Substance which we call Chyle.

The

The Chyle, being thus prepar'd in the Stomach, passes by degrees out at its lower Orifice into the small Guts, and is by the same Powers, squeez'd into the small and minute Orifices of the *lacteal* or milky Veins, which, as has been observ'd in another place, arise from all Parts of the said Guts, by fine *Capillary*, or Hair-like Tubes: And altho' these Tubes are so small, that they cannot be perceiv'd but in Animals open'd alive immediately after eating, at which time they are full of Chyle; yet every one of them imbibe and drink up part of the refined Aliment; and as they run from the sides of the Guts to the Glands in the Mesentery, they unite and form larger Branches, and are called the *lacteal* Vessels of the first Kind. These Extremities of the *Lacteals*, having Communication with the small capillary Arteries of the Guts, receive a thin *Lympha*, which not only dilutes the Chyle, and helps to drive it forwards, but also washes the *Lacteals* and Kernels, that they may not sur and be stopp'd up by its staying in them upon fasting.

Its Passage into the small Guts.

There are other *Lacteals* which are larger, and are called *Venæ Lactææ Secundi Generis*, or the *Lacteals* of the second Kind: These receive the Chyle that was discharg'd by the first, into the vesicular Kernels of the Mesentery, and carry it immediately into its common Receptacle.

The Lacteals.

The *Lymphatics*, which arise from most of the Intestines of the lower Belly, and from the lower extreme Parts, empty their Liquor into that Receptacle, which being mixed with it, makes its Parts still more fine, and fit to be united with the Blood; and as the Chyle leaves its Receptacle, and ascends the thorack Duct, the other *Lymphatics*, which arise from the Parts contain'd in the Chest, empty themselves into the Duct, and those which come from the Head, Neck, and Arms, discharge their Contents into the Jugular and Subclavian Veins, by which it becomes yet more diluted and perfect, as it enters into the Mass of Blood.

The *Lacteals* and Thorack Duct have Valves, which open for the Passage of the Chyle, but shut themselves so as to hinder its Return back again; and the Thorack Duct, being placed behind the great Artery, receives a new *Impetus* by its Pulsation, which also forwards the Ascent of the Chyle. The *Lymph-*

The Thorack Duct and Lacteals have Valves, to hinder the Return of the Chyle.

Ducts

Ducts contract themselves at unequal Distances, and have also their little Flood-gates, which permit their Liquor to take its Course towards the Chyle-Vessels, but hinder its coming back the same way; by all which Means the animal Body can never be depriv'd of its Nourishment, but in case of Sickness or Want.

*Its Entrance
into the Blood.*

The Chyle being prepared in the Stomach and small Guts, as has been observ'd, and being also further refin'd by the Commixture of the *Lympha*, in its Passage thro' the Lacteals and Thoraick Duct, is convey'd by that Canal to the left Subclavian Vein, where it opens itself at several Orifices, and mixing with the Blood, is carry'd directly to the right Ventricle of the Heart, and is no farther to be traced under the Name of Chyle, but henceforth becomes a part of the Blood.

Now, that all the Blood takes a circular Course thro' the Heart, is an Opinion so generally receiv'd, that I need say nothing about it, but proceed to shew the Way and Manner by which that is perform'd.

*The Circulation
of the Blood
through the
Heart, &c.*

The ascending and descending Trunks of the *Cava* unite opposite to the Heart, and open into its right Auricle, or Ear; and at the place where they enter, there is a small Protuberance made by their Coats on the inside, like an *Isthmus*, which hinders the Blood of either Trunk from rushing against the other, but directs both into the Ear. The right Ear receives in its *Diastole*, that is, when it is distended, all the Blood from both Branches of the *Cava*, which it empties by its *Systole* into the right Ventricle of the Heart, which at the same time is in its *Diastole*. The right Ventricle in its *Systole* presently empties itself into the Pulmonary Artery, or that of the Lungs, for it cannot return back again into the Ear, because of the *Valvula Tricuspides*; as that which is once receiv'd into the Ear cannot return into the *Cava*, because of the tendinous Circle about its Mouth, which contracts itself as often as the Ear is filled. As often as the Blood has taken its Progress thro' all Parts of the Lungs, in the Pulmonary Artery, it is receiv'd from its Capillary Branches, into those of the Pulmonary Vein, and is convey'd by it back again into the left Ear of the Heart, which, by its Contraction, thrusts the Blood into the left Ventricle, then in its *Diastole*, and when that is contracted, it is thrust out into

into the *Aorta* ; for it cannot come back again into the Ear, because of the *Valvulae Mitrales*.

The *Aorta* having receiv'd the Blood from the left Ventricle, sends out two small Branches, call'd the *Coronariae*, which go to the Heart, and then forming a small Arch, by which the Force of the Blood is somewhat abated, in its Expulsion it is divided into the *Aorta* ascending and descending.

The Aorta.

Its Distribution into all Parts.

The ascending Trunk climbing up by the Windpipe to the top of the Breast, sends forth two Branches, call'd the *Subclavian*, which run under the Chancel-bones on each side. These send forth several other Branches, both from their upper and under side ; from their upper side spring those Arteries, which, in Men, are call'd the *Cervical*, being partly spent on the Muscles of the Neck and Breast, and partly on the *Glandulae Thyroides*. Out of their lower side proceed the superior *Intercostals*, which passing thro' the Chest, send forth several Branches to the Arms in human Bodies, and to the fore Legs in brute Creatures.

The Subclavian Arteries.

Where the *Subclavians* go off from the great Artery, on each side there arise two other principal Branches, which ascend upwards towards the Head, and are call'd the *Carotid* Arteries : These are spent chiefly on the Brain, forming there the *Rete Mirabile*, and *Plexus Choroides*, &c. but as they ascend, they detach several Branches to the Windpipe, *Larynx*, some to the Tongue and lower Jaw, and others to the external Parts of the Head. By these four principal Branches, to wit, the *Subclavian* and *Carotids*, the whole Head and Neck, as also the external Parts of the Chest and fore Legs, are supplied with Nourishment.

The Carotid Arteries.

The descending *Aorta*, as it goes down towards the Midriff, sends forth the inferior

The descending Trunk.

Intercostals and the *Bronchial* Artery, which accompany the Branches of the Windpipe in the Lungs ; and when it arrives at the Midriff, it detaches those call'd the *Phrenick* Arteries, which are dispersed through the Midriff and *Mediastinum*. After it has passed thro' the Midriff, it marches downwards as far as the last *Vertebra* of the Loins, but by the way sends off several Branches to the Stomach and other Intestines, as the *Celiac*, the *Splenic*, and the upper *Mesenterick* ; after these spring forth

*Its Distribu-
tion.*

the Emulgent Arteries, one on each side, which go to the Kidneys; and below these, from the main Trunk also arise the *Spermaticks*, which go to the *Testicles* and *Ovaria*, &c. then the lower *Mesenterick* communicating with the upper, supply the whole Mesentery.

As soon as the Trunk of the great Artery has reach'd the top of the *Os Sacrum*, it divides itself into two equal Branches, call'd the *Iliacks*, which are again subdivided into the External and Internal. From the Internal proceed those called *Musculæ*, which are bestow'd on the *Psoas* and Muscles of the Buttocks; as also the *Hypogastricks*, which run to the straight Gut, the *Matrix*, and Bladder, the *Prostates* and Yard, and to all the other Parts contained within the *Pelvis*. From the External *Iliacks* arise first the *Epigastrick* Arteries, which, turning forwards, creep along the outside of the Rim of the Belly, as far as the Navel, where they meet the *Mammillary*. The next are those call'd the *Pudenda*, which go to the Privities of both Sexes. Afterwards the *Iliack* Branches go to the Thighs, and are then call'd the *Crural Arteries*, supplying the hind Legs and Feet with many considerable Branches.

This is the Order and Distribution of the principal Arteries of almost all Animals, each of which Arteries are subdivided into others, and these again into others, till at last the whole Body is overspread with most minute Capillary or Hair-like Arteries, which frequently communicate one with another; so that when any small Artery is obstructed, the Blood is brought by the communicating Branches to the Parts below the Obstruction, which must otherwise have been depriv'd of its Nourishment. Nature has observ'd the same Oeconomy in the Distribution of the Veins, that in case any Vein should be obstructed, the Blood might not stagnate, but be also return'd by other communicating Branches.

*The Arteries
very strong,
and endued
with a Spring.*

But before I proceed to an Account of the Veins, I shall observe farther concerning the Arteries, that as it is their peculiar Province to carry the Blood from the Heart, and distribute it into all Parts of the Body, they are perfectly fitted for that Purpose by their Structures: For an Artery being composed of three Coats, the middlemost very strong, and endued with Elasticity, by

virtue

virtue of the spiral Direction of its Fibres, it is thereby enabled to bear the frequent Sallies of the Blood in its Expulsion from the Heart; and lest these Fibres should separate upon any violent Impulse, the innermost Coat, tho' a fine transparent Membrane, yet it is wove so close, as to be able to preserve the middlemost, and keep the Blood within its proper Channels.

It is moreover to be observed, as the Arteries are conical Channels, and grow gradually smaller, so their Coats grow proportionably thinner. And the Coats of the Veins seem, according to the Opinion of the most modern Anatomists, to be only a Continuation of the Coats of the Capillary Arteries, reflected back again towards the

The Coats of the Veins a Continuation of those of the Arteries.

Heart. But altho' the Coats of the Veins be the same with those of the Arteries, yet it is to be taken notice of, that the Muscular Coats of all the Veins, are as thin as in the Capillary Arteries; the Pressure of the Blood against the sides of the Veins, being much weaker than that against the sides of the Arteries, and therefore not requiring its Channels to be so thick and strong.

The Veins are not endued with Pulsation, as the Arteries, because the Blood falls into them with a continual Stream, from the Capillary Arteries, which, by reason of their smallness, have only a very weak, or scarcely any Motion; and then as it advances towards the Heart, it moves from a narrow Chanel to a wider; and therefore its Motion would have been extremely languid and slow, had not Nature contriv'd several Helps to promote its Passage. For that Reason, as it is the Office of the Veins to return and carry back

The Veins have Valves.

all the Blood to the Heart, there is to be seen in most of them (especially in such as have their Direction upwards) several Valves at convenient distances, sometimes one, and sometimes more, like so many half Thimbles stuck to their side, with their Mouths towards the Heart; and as the Blood moves that way, they are pressed close to the sides of the Veins; but if it should fall back, it must fill the Valves, and stop up the Chanel, that no Blood can repass them. And besides these Valves, it is also observable, that in many places where there is a Branch of a Vein, there is an Artery lies under it, which, by its continual Pulsations, helps to forward the venal Blood towards the Heart; so that albeit the Blood moves from a narrow Chanel into a wider,

wider, as has been observed, and its Motion is in many Places directly upwards; yet nothing can happen in a natural way to retard its Progress.

But I shall retain the Reader no longer with the difference between the Veins and Arteries, believing what has been already said, sufficient to give any one a Notion of their several Offices; I shall therefore proceed to give some Account of the Order and Distribution of the Veins, as they correspond with the Arteries.

The Cava. As the great Artery receives the Blood from the Heart, and distributes it from thence into all Parts of the Body, so the *Cava*, like a main River, receives into it the Blood which is convey'd from all Parts of the Body, proceeding at first from Vessels infinitely small, and afterwards uniting in large Branches, which empty themselves into its superior and inferior Trunks, at proper and convenient Distances.

The descending Cava. The superior, or descending *Cava*, receives first the Coronary Vein from the Heart, near that Place where it opens into the Ear. As soon as it pierces the *Pericardium*, it receives the *Vena sine pari*, which is made by the Union of the Veins of the Ribs on each side.

Its Distribution. The *Subclavian* and *Jugular* Veins are pretty large Vessels, which answer to the *Subclavian* and *Carotid* Arteries, and are the next of any note that open into the descending *Cava*. The *Jugulars* are divided into the External and Internal; the External is that large Vein which runs along the outside of the Neck, called in a Horse the Neck-vein, and is most commonly open'd when Bleeding is required. This Vein receives and carries back that Portion of the Blood, which comes from all the external Parts of the Head and Face, viz. from the Eye-veins, the Temple-veins, and those of the Nose and Lips. Into the Internal *Jugulars* open all those Veins which lie within the Bars of the Mouth, and under the Tongue, and all the other Branches which communicate with those of the Brain.

The *Subclavian* Veins, viz. the two large Branches which pass under the Chancel-bones, not only receive a great part of the Blood which comes from the Chest, but likewise have all those Veins open into them, which run along the outward part of the Breast, fore Legs, and Feet, such as the Breast-veins that run between the fore Legs, which

which Farriers sometimes open in Fevers, &c. the Plate-veins, the Shank-veins, and Shackle-veins, as also the Veins of the Corner and Toe, which are usually opened in Diseases of the Legs and Feet.

The *Cava ascendens*, or the great ascending Vein, which answers to the great descending Artery, receives also all those Branches of Veins which return the Blood from most parts of the lower Belly, viz. the *Mesenteria* from the Mesentery, the *Portæ* from the Liver, the Emulgents from the Kidneys, the Spermatick Veins from the Parts of Generation in both Sexes. And after it divides itself, as the Artery, into the internal and external *Iliacs*, it receives several Branches. Into the Internal open the *Hypogastricks*, by which the Blood is returned from the *Matrix*, the Bladder, and straight Gut; and into the External open the *Epigastricks*, with Blood from the *Peritonæum*, and external Parts of the lower Belly; and into the *Epigastricks* open the Crurals, which receive all the Blood that flows from the extreme Parts; for into them open those Veins, improperly called by Farriers the *Kidney-veins*; as also the *Spavin-veins*, the *Flank* and *Spur-veins*, with that of the Rump, called the *Tail-vein*.

The ascending Cava.

Its Distribution.

These things being premised, it will be easy for any one to form an Idea of the Distribution of the Blood into all Parts of the Body; especially if it be farther considered, that the Vessels in which the Blood flows, are divided and subdivided

The Nutrition of the Parts.

into an infinite Number of Branches; and that even all the Parts of the Body, whether those that are hard, or those that are denominated soft Parts, seem to be no other than so many infinitely small Tubes variously modify'd and combin'd together; for by this means the whole Body is fill'd with Blood and other nutritious Juices, and receives its Nourishment from Blood, as the Blood itself is recruited and repair'd by the Aliment. And from the same Consideration it is also evident, that no Animal Body can be sustained without the Requisites of Food and Rest, by reason the Structure of all Animal Bodies is of this sort; that is to say, all are made up of Fibres, and these Fibres are again made up of those that are less, and so on *in infinitum*. They must therefore, because of the Infinity of Pores and Intestines that are in them, require constant

constant Supplies, as there are continually some Dregs and Excrements exhaling through them.

But this will appear still more evident, when we consider, besides the *Effluvia* that go off insensibly in this manner thro' the Pores and Interstices of the Body, that most of the Glands are continually separating some part of the excrementitious Matter of the Blood; though all that is discharged by the Mouth and Nose, by Urine and Dung, and by Sweat, or any other sensible Way whatsoever, does not near amount to the Discharge that is made through the Pores by insensible Transpiration. This is so palpable a Truth, and has been so well proved by the Experiments of *Sanc-torius*, that there needs be nothing farther said about it. And therefore we may conclude, that since the Bodies of all Animals are thus compounded, and made up of Matter which is full of Pores and Interstices, and maintained by Juices, which are again capable of being dissipated and waited through those Pores, there must be continual Supplies of Food to maintain those Bodies in an uniform State.

Now it is plain, that all Bodies suffer a Dissipation and Waste, if the Quantity of the Aliment be abated: For in such a Case we observe any Creature grow lean and emaciate. It is also evident, that all such suffer by Exercise, by hard Labour, by want of Rest, when it is the stated Time of Sleep; and by many other ways, not necessary to be mentioned. And therefore all Creatures are under an indispensable Necessity both of Feeding, and taking suitable Rest, to make up the Waste and Decays of Nature; for as often as there is a great Dissipation by Labour, or by any other Way, the small *Fibrillæ* are thereby abraded and wore by the quick Motion the Blood and Spirits were in, during that Exercise; or even, if the Body was not in Exercise, it will suffer by the constant Activity of the Spirits themselves; so that a stated time of Rest must also be necessary for all Bodies, as well as Food: For when the Body is at rest, the Spirits are, as it were, lull'd and laid asleep; so that the Blood acquires, during that time, a more uniform and gentle Motion, and is more equally distributed into all Parts, and thereby fills up all the vacant Spaces that are made during the time of Exercise, &c.

But it may be expected, before I put an end to this Discourse, that I should say somewhat more particularly concerning Secretion; but I shall only observe in general, that it

it will be necessary to consider, that the Blood, examin'd chymically, is found to consist only of the following Principles, *viz.* Volatile Salt and Spirit, some Phlegm and Sulphur, and a little Earth, but little or no fix'd Salt. Now every one, who is the least acquainted with Chymistry, must be sensible how many different sorts of Liquors may be form'd out of a few Principles variously combin'd together: So that although the Blood itself simply consists only of these abovemention'd, and to the Eye seems only to be made up of its red and serous Part; yet, according to the latest Observations, there are near thirty several Liquors separated from it; all which is owing to the various Structure of the Glands, some of which are so small, and so variously wound up, and their Vessels drawn out into such extraordinary length, that nothing but the most minute and spirituous Particles of the Blood can pass through them; and, doubtless, of such a Structure is the cortical Part of the Brain, by which the Animal Spirits are discern'd. Others again are more wide, and separate chiefly Excrements. But I shall not enter upon this Subject, seeing those who have any Curiosity that way, may be fully satisfy'd by perusing several Books that have been professedly writ on that Subject.

The End of the Anatomy of a Horse.



THE
FARRIER's
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Of all the

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Incident to

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WITH THE

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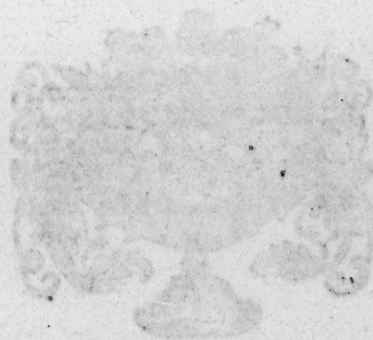
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THE
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CHAP. I.

Of the Diseases of Horses in general, and the Causes thereof.



AS Health consists in a due and easy Motion of the Blood, so a Disease may be properly said to be an unusual Circulation of the Blood, or when its circular Motion is augmented or diminished throughout the whole Body, or in some Part only; and thus a Creature may be properly term'd diseased, when its Blood flows faster than usual, or when it is irregular in its Motion, being sometimes flow, and sometimes more quick. Or lastly, when its Progress is impeded and hindered in some particular Part of the Body only, as is common in all Swellings, &c. and therefore whatever occasions an unusual Circulation of the Blood, in any of the foregoing respects, may be accounted the Cause of a Disease.

A Disease defined.

Now the Causes which bring on Diseases being in a manner infinite, since most Accidents to which Bodies are expos'd from other Bodies, may be the Occasion of some Distemper; and likewise since Diseases may proceed from the Action of the same Body upon itself, in a way that is either voluntary or involuntary; I shall therefore forbear all unnecessary and unprofitable Deviations, and only take notice of those Causes which are most apparent, and the most common.

The Antients being unacquainted with the true Structure and Oeconomy of animal Bodies, ascrib'd a great deal to those Qualities which they believ'd to be in all Bodies, proceeding from the four Elements, as also to the Errors of Feeding, Exercise, and Rest, &c. which they called the *Nonnaturals*. And our Farriers, especially *Markham* and *De Grey*, in Imitation of them, have puzzled their Readers with a sort of Philosophy, which neither themselves understood, nor will ever be of any use to Posterity. The one begins with Generation and Corruption, the other with the Formation of Animal Bodies out of the four Elements, *viz. Fire, Air, Water, and Earth*; and subsequent to them to be made up of four Humours, *viz. Blood, Phlegm, Choler, and Melancholy*; and accordingly, their Bodies were of different Temperaments, hot and dry, cold and moist, as this or that Humour was predominant. Nay, *Markham* has refin'd so far on these Notions, as to judge by a Horse's Colour and Complexion, which of all the Elements had the Ascendant in him; and, consequently, whether he is of a cholerick, melancholy, or phlegmatick Disposition.

I shall very readily own, that some of those Marks, which that Author has taken notice of, may oftentimes denote the Faults and Imperfections of Horses; but that they are reducible to such Temperaments and Humours, as he has ascrib'd to them, is a meer Dream, and, doubtless, may have been the Death of some Thousands of Horses in this Kingdom; since it is reasonable to suppose, that most of the *English* Farriers, building upon him, guess at the inward Distempers of Horses, more from their Colour and Complexion, than from any other Signs whatsoever.

All that can justly be observ'd in Horses, as to their Temperaments, is the two Extremes of too much Fire or too little, the rest inclining more or less to the one or

to the other. When a Horse has too much Fire, and is therefore untractable and unmanageable (if that Disposition is not itself a Disease) it exposes him to a great many Accidents, which would be needless to name; besides, that by the continual Restlessness of his Spirits, and the constant Hurry of his Blood, he must therefore be subject to several Distempers, more particularly to Fevers, and oftentimes those of the worst kind. If, on the other hand, a Horse be of a dull, sluggish Disposition, he must also be expos'd to Distempers that are peculiar to a slow and languid Blood; and the nearer any Horse approaches to either of these Temperaments, he is the more obnoxious to their Distempers.

Horses may be also said to be of different Temperaments at different Periods of their Life; and therefore a young Horse being full of Blood, and his solid Parts as yet of a loose Texture, must be more subject to Diseases, than one who is arriv'd at his Prime; and those Diseases must be of worse Consequence to him, if not carefully look'd to. And likewise a Horse who is grown old, tho' such an one is not so apt to be diseased as a young Horse, yet their Diseases more frequently end in Death, or prove irrecoverable; because the Blood at that time grows languid, and loses the Vigour that is peculiar to Youth and the middle Age, which must needs deprive them of the Benefits and Assistances of Nature. But a Horse in his Prime, having then all his Parts well conform'd, and his Blood in its best state, neither too luxuriant, nor too much depauperated; and likewise the Quantity of Blood being in that Age nearly adjusted to the Capacity of the Vessels in which it flows; he is therefore neither apt to be diseased, nor are his Diseases apt to be of a long Continuance.

But the Farrier ought carefully to take notice, that albeit these Observations concerning Temperaments may, for the most part, be very just, yet it is undeniable that some are more robust and hardy, while but Colts, than others are at the Prime of their Age; and some retain a great deal of their Vigour, even when they are grown old, and as easily get over any Accident as Horses that are young. And likewise it is to be observed, that some Horses of a faint washy Colour, sometimes prove hardy and durable; and therefore, besides all common Rules and Observations, it may be necessary to the forming a right Judgment of the

What to be observ'd concerning the Temperament of Horses.

Temperaments and Constitutions of Horses, to have recourse to Examination and Trial.

After what has been said as to Temperaments, I shall not trouble the Reader with those confused and unprofitable Speculations about Members, Powers, Actions, and Operations, and the rest of those they term'd *Naturals*, but proceed to the *Nonnaturals*, which, according to the Ancients, were reckon'd six in number, *viz.* Air, Meat and Drink, Sleep and Watching, Motion and Rest, Things excreted and retained, and the Affections or Motions of the Mind, and were such as hurt by Necessity; so that this Enumeration is more accurate, as apply'd to brute Creatures, than to Man, who has the Use of his Reason, and may therefore avoid several of the Accidents proceeding from them.

Nonnaturals, Now these are said to be profitable or
how they profit, hurtful to all Creatures; but our Business
or become hurtful. at this time is only to take notice of them
in the latter Sense. And, first, as to Air.

The Air may be many times the Cause of Diseases; for if that be too much rarefy'd, it hurts the Blood's Circulation, not being of sufficient force to help it through the Lungs; whence its Motion becomes slow, and Perspiration decreases, which leaves a load upon the Vessels, and renders the Blood viscid and tenacious. The same Effect also happens from the Air's being too gross, for then the Circulation of the Blood is impeded in the Lungs, by its too great Pressure and Weight upon them.

Food may also become hurtful to Horses, both as to its Quantity and Quality; for if that be musty and raw, corrupt and unclean, it must breed Crudities, and thereby render the Chyle viscid, which will of necessity retard the Motion of the Blood; and if it be of too hot and spirituous a nature, it must, on the contrary, render the Blood too thin, and thereby increase its Motion too much. Immoderate feeding, be the Food never so wholesome, especially when the Horse wants Exercise, must vitiate the Blood; for in such a Case there is no room given for Digestion, so that a great deal of Chyle must enter into the Mass of Blood, before it has been thoroughly prepared in the Stomach. The same Effects may be also produced from excessive Drinking, especially of stagnated Waters, or Waters proceeding from some sort of Minerals.

Long continued Exercise, especially when it is too violent, occasions a too great Diffipation of the Spirits; and if a Horse's Stomach is very full, or if he be full of Blood, it brings on innumerable Disorders; as shall be observ'd, when we come to treat of the Diseases particularly. But the want of proper Exercise is equally pernicious, as it hinders Digestion, and occasions a too great Distention of all the Vessels, which causes Surfeits and other Distempers.

A too quick Discharge of the Dung, before there is a due Separation of the Chyle from the excrementitious Parts, occasions Sickness; for in such a Case there is ejected and thrown out the useful with the useless, whence must proceed a Refrigeration, and Weakness of the Body, by reason of a debilitated Circulation of the Blood. As, on the other hand, when a Horse is costive, and his Excrements retain'd too long, a *Plethora*, or Over-fullness, will be apt to ensue. But these are rather to be accounted Diseases than Causes, especially in brute Creatures.

Immoderate Sleep may often be the Cause of Sickness; because in Sleep the external Senses are weak, the nervous Fluid moves slowly, the Heart is seldomer contracted, and the Circulation of the Blood goes on with less briskness: Watching produces all the contrary Effects.

As for the Passions and Affections, to which *Markham*, and others, have ascribed Diseases, it is very certain that these Creatures have their several Affections; such as Love and Hatred, Fear and Anger, which may be accompany'd with a slow or quick Motion of the Blood, as this or that happens to be predominant; but these being seldom permanent, and of any continuance in brute Creatures, but chiefly administer to their common Instinct of Self-preservation, there cannot therefore be much attributed to them.

Besides the above-recited Causes, which are indeed the most common and ordinary, there are an infinite Number of others, which may bring on Diseases, as has been already observ'd; and such are all outward Accidents, as Falls, Bruises, Wounds, and the like; as also unseasonable Evacuations, and all improper Application of Remedies, which is frequently practis'd among Farriers for Prevention, while Horses are in a state of Health. But I shall take some notice of this in a following Chapter, and therefore proceed to the Signs.

C H A P. II.

Of the Signs of Sicknefs in Horses.

*Diseases in
brute Creatures
have to be di-
stinguished.*

IT is indeed very difficult to arrive at any certain Knowledge in the Diseases of brute Creatures, and therefore it is no wonder if the Farriers are mistaken in enumerating Signs, because we can only judge by outward Appearances, and not from any Insight they can give into their own Indispositions, but especially as there are many Diseases that are accompany'd with the same common Symptoms; and therefore, tho' we may be assured that a Horse has a Fever, or a Strangury, we cannot at the same time be certain, without a very careful Examination, whether he may not have an Inflammation in the *Pleura*, or in his Kidneys. All the Signs that these Creatures usually give in the Affections of particular Parts, is by turning their Head towards that Part. Neither is that always to be depended upon; for a Horse may turn his Head towards the right side of his Belly; and the Farrier, who chiefly takes that Indication to signify a diseased Liver, may be grossly mistaken, since a Horse very frequently gives the same Sign in a Colick. The only way therefore to get an Insight into the Diseases of Horses, is to make a judicious Comparison of all the Signs that can be gather'd in any Distemper, and by that means the Farrier may go on to administer his Physick with some Assurance; and herein they may be very much assisted by the Remarks of the *Sieur De Solleysell*, who has been a more accurate Observer of all those things, than any other who has wrote upon the Subject.

The first Sign that a Horse commonly gives of Sicknefs, is loathing his Food; this is common to all Fevers. In some Cases a Horse looks wild and haggard; and albeit at other times he was easy and tractable, he now grows disobedient and restless, will neither stand long, nor when he lies down, will he continue in that Posture, but immediately starts up again: This may, for the most part, be reckon'd a Sign of violent and excessive Pain, and, no doubt, proceeding from an Inflammation of the *Pleura*, or Lungs, especially if his Heart and Flanks beat, and that he labours for Breath. Other Signs of Sicknefs are, a dry and parch'd Mouth, the Tongue white and crust'd over, and the Breath
excessive

CHAP. II. *Of the Signs of Sicknefs in Horses.* 7

exceſſive hot. Some Signs are alſo exhibited which denote Sicknefs, but are different from the former; as when a Horſe hangs his Head, has a Coldnefs and Dampnefs about his Ears, his Eyes watery, ſometimes with a Mixture of Corruption, ſlow and dull in its Motions, being apt to ſtumble, as often as he attempts to walk; takes no notice of any other Horſe, or of any Perſon coming near him. Some Sickneſſes, as Intermitting Fevers, will produce ſome Intervals of Trembling and exceſſive Sweating; and ſome have Symptoms compounded and made up from complicated Sickneſſes, which exhibit ſeveral of theſe Signs together.

There may be alſo divers Signs taken from the Dung and Urine of a Horſe; but thoſe from the Urine are the moſt certain: When a Horſe in Sicknefs ſtates clear, and when that is preſerved, if there be no Sediment in it, it prognostiates a growing Diſtemper; but when the Urine turns of a reddiſh or yellowiſh Colour, and has either a Cloud ſwimming in it, which is not black and earthy, or a Sediment falling to the bottom, and begins to have a rank Smell, it is then a Sign the Diſtemper begins to break: But when the Cloud is of an earthy or black Colour, and coheres in a Body without parting, it is a Sign the Diſeaſe will prove mortal. It may be farther remark'd, as to Urine, if it be different at different Times, ſometimes reſembling that of a ſound Horſe, and ſometimes giving Signs of Sicknefs, it then betokens a great Malignity in the Diſtemper, proceeding from an Inequality in the Blood's Compoſure, which cauſes alſo an Inequality in its Motion.

There might be alſo Signs taken from the Pulse, which is plainly enough to be felt on the Temples and fore Legs of a Horſe; but as that Method has never as yet obtain'd among Farriers, I ſhall therefore paſs it over.

The *Sieur De Solleysell* obſerves, when a Horſe piſſes without ſtriding, and without putting forth his Yard after long Sicknefs, (unleſs he has been accuſtom'd to do ſo in a State of Health) it is a mortal Sign; and likewiſe that it is a no leſs fatal Prognostication, when the Hair of a Horſe's Skull or Tail may be eaſily plucked off. The ſame Author obſerves farther, that it is alſo a dangerous Sign when a Horſe lies often down, but ſtarts up again immediately, not being able to breathe freely in a lying poſture; and on the contrary, that it is a very promiſing Sign when a Horſe lies quietly in the decline of Sicknefs. But more parti-

particular notice shall be taken of those Things, when we come to treat of the Diseases themselves.

C H A P. III.

Of the Method of Cure.

WHEN the Farrier has diligently inquir'd into the Nature and Cause of a Disease, his Business is in the next place to administer such Things as are proper to restore Health; and that he may the better succeed therein, I shall lay down the following general Directions.

*Regard to be
had to the
most urgent
Symptoms.*

First of all, a particular Regard is to be had to those Symptoms that are the most urgent, and any ways endanger Life; and therefore if the Signs discover a Horse to have an Inflammation in the Lungs, or *Pleura*, which may be guess'd at by his being suddenly seiz'd with Difficulty of Breathing, and an Inability to continue in one Posture; or if a Swelling should arise on his Throat, which might hinder him from getting down his Food, or render him liable to Suffocation, such Evacuations, or other Means as are proper to remove those Symptoms, must immediately be used, setting aside all other Considerations of Sickness. And, in like manner, if a Horse should be seiz'd with a violent Hemorrhage of Blood, the first Intention must be, to stop it; for the removing of those not only preserves Life, but in some Cases puts an end to the Disease.

Secondly, If in any Distemper the Indication is taken chiefly from Crudities lodging in the Stomach and Guts, then such Medicines only as clear those Passages, are to be administer'd, without regard to any other; but if this be accompany'd with any other Disease, then all the Medicines that are to be given in such a Case, must not be levell'd at the Diseases of those Parts directly, but at others in conjunction with them.

Thirdly, If the Indication is taken from the Blood, it is then to be considered, that all its Disorders depend upon its circulatory Motion being increased or diminished; and that all the Changes in the Texture and Quality of the Blood, as also in its Quantity, are attended either with a Diminution or Increase of the Blood's Velocity; and therefore if the

Quan-

Quantity of the Blood is augmented, Bleeding and other Evacuations are necessary; but if the Quantity thereof be diminished, then Restoratives, Rest, and nourishing Food may be required: And if this last proceeds from any Error in the Stomach, causing Loss of Appetite, in such a Case those things are to be administer'd which create Hunger, and help Digestion. If the Texture of the Blood be chang'd, as is usual in a continual Course of Sicknes, then it may be necessary, besides other Intentions, to administer such things as may correct the vitiated Mass.

Fourthly, When a Disease proceeds from an Increase or Diminution of some Secretion, the Cure ought, for the most part, to be perform'd by such things as enlarge the Secretions that are too sparing, and restrain such as are too liberal: And the safest way to restrain an augmented Secretion, is by the Increase of some other Secretion. And indeed, this Method of Revulsion has been safely practised among all Physicians; and if it could be rightly understood by Farriers, it would be of the greatest Importance in their Practice.

But here it is to be remark'd, that when we speak of an augmented Secretion, we understand that as a Disease, and not as a Remedy: For sometimes a Secretion augmented becomes a Cure; and in such a Case it is not to be stopp'd immediately, but rather somewhat assisted, when any ways imperfect. As for instance, if a Horse be lax, and has a Scouring upon him: when this proceeds from a Disorder of the Guts only, by a Putrefaction of the Excrements too long detained, it may be very proper to administer some moderate Purge, provided it be of such a nature as will not too much relax the intestinal Glands. But if this Cause proceeds from an obstructed Transpiration, as is very usual, then such things as promote Sweat, and a breathing through the Pores, must be likewise administer'd. The like Method is to be observed in most other Secretions, as in Sweat, Urine, running at the Mouth and Nose, which may be often observed among Horses in the decline of Sicknes.

Fifthly, In the Cure of all Diseases, Nature is the best Guide, and therefore the Farrier must diligently follow her. Whenever she finds herself oppress'd, she endeavours to throw off the Load, and tries all the nearest and properest ways for her Relief; and it is for the Conservation of Health, or recovering

*Nature to be
carefully ob-
served.*

covering it when lost, that she is so abundantly furnish'd with Drains and Outlets, for such are most or all the Glands, by which Secretion is performed; but though Nature is to be carefully observ'd, and follow'd in all her Motions, and to be assisted when her Operations are too weak and imperfect, or restrain'd when too powerful; yet she is not to be compell'd, but must herself be the Beginner, and very often the Finisher of the Work also. And therefore, whenever the Practitioner finds her own Efforts fruitless, while she is endeavouring one while by one Secretion, and at other times by another, to give vent to that which oppresses her; he is not to be over forward in assisting her in her restrain'd Inclinations, but conclude with himself, that the Matter is not as yet render'd of such a due Magnitude or Smallness, as to be carried along the Canals, and discharg'd by the Vessels which are appointed for that Purpose; so that his Business is only to help her with such Things as will thicken or attenuate, &c. as he shall see occasion; waiting with Patience until her more sensible Operations become permanent and lasting, and that she becomes free and easy in all her Exertions; and this Change is what Physicians call the *Crisis*, or Turn of a Distemper.

But when her Operations are too violent and powerful, if Life is thereby at stake, as in the Instances abovemention'd, by an excessive Hemorrhage of Blood, or an Influx into some Part, occasioning a Suffocation; or, in case of an augmented Secretion continuing too long, then the Rules already laid down must be follow'd. But if it happens, as may be often observ'd in imperfect *Crises*, that an Hemorrhage of Blood proceeds only from a Rupture of Vessels that are very small, or that the Blood, by reason of its abated heat, flows but moderately; or if a Tumour arises, or an Abscess be found in any Part of the Body, by which Life is not in danger; these are not to be prevented, but manag'd in a way that is suitable to the Nature of such Accidents.

C H A P. IV.

Discovering some Errors in the Methods usually taken to prevent Diseases in Horses, with the properest Means to preserve Health.

Nothing is more frequent among Farriers, than the administering Physick to Horses that are sound and healthful, in order to prevent their falling into Diseases; with this Notion most People, as well as they, have been prepossess'd, insomuch that they have tied themselves up to Times and Seasons, believing a Horse can never keep sound, if he is not bled at this time, purg'd at that, and at another time rowell'd; some have Cordial Balls, or Drinks, which they keep as Secrets, and which they affirm will prevent all manner of Infection and Sickness. But I shall endeavour to shew what manifest Abuse there is in all those Things, and lay down some general Rules which may truly be of service to the Preservation of Health.

Physick unnecessary to Horses, while they are in Health.

The Health, in its best Estate, is only relative, yet all Creatures may be properly said to be in Health, when they sleep, eat, and digest, when they move without Pain; and all this depends upon a regular and uniform Motion of the Blood; now whatever contributes to keep up that uniform and regular Motion, must be the Means to preserve Health; but it is very certain, the Means that are used in time of Sickness, to restore that regularity in the Blood's Motion, must be prejudicial in a State of Health, because they must effect some Change in the Animal Oeconomy, which was not wanting. Thus Bleeding and Purgings may be of use to put a Check to a Disease, if a Horse be plethorick and full of Blood, or if a Horse has any other Signs that require Evacuation; but then it is to be consider'd, that these are Diseases actually begun; and if a Horse has none of these Signs, the Effect that any such Evacuations can have upon him, must be a lessening the Quantity of his Blood, which is often of bad consequence; because the lessening the Quantity of the Blood, gives it a different Motion from what it had before.

An Objection answered.

If any one should plead that these Evacu-
uations are made to bring a Horse into a
better state of Health, and thereby strengthen his Body,
and enable him the more to resist Diseases; I answer, there
is a certain state of Health which is natural and agreeable
to every Horse, and consists in the Requisites abovemention'd, to wit, in a Life free from Pain, or any insensible
Imperfection; and, no doubt, as among Men, one Horse
may, comparatively speaking, enjoy a more perfect degree
of Health than another is capable of; and this is owing to
some difference in their original Structure and Make, where-
of we are ignorant; so that they may as well turn a black
Horse white, or a white Horse black, as to pretend to make
a Horse strong, who is naturally of a weak and delicate
Constitution. All therefore that can be expected from
tampering with Horses that are in their best Estate, is
either little or no Alteration at all, if a Horse has Youth
and Vigour to overcome the Shocks given to Nature by
Physick, or else an Alteration for the worse; because the
strongest Horse may thereby be brought into an habitual
Weakness, which becomes a Disease; and a Horse that is
weak, may become yet much weaker; and these Acci-
dents frequently happen by such unskilful Management,
though they are generally attributed to some other Cause.

The Cause of several Errors in the Practice of Farriers.

But what has led Farriers into those Er-
rors, is a confused Notion many of them have
of all Diseases proceeding from corrupt
Blood; and therefore, as if the Blood of
Horses was like Pond or Ditch-water, which gathers Mud
and Filth at certain times, they think it should be often
cleansed. And because the Blood of these Creatures (as most
of them are used to Toil and Labour) is generally of an
unpleasant Aspect, they seldom or never take Blood from
any Horse, but they think him full of bad Humours, not
considering but this may be the natural state of his Blood;
and for that Reason they do not often miss telling the
Owner, that his Horse wants Purging as well as Bleeding.

Another thing which seems to have given Encourage-
ment to those Methods, is, because some Horses have been
observ'd to eat plentifully, and not thrive, till after Evacua-
tions were made pretty largely. Whenever any such thing
happens, there is the Sign of a Disease proceeding from
some Obstructions in the Mesentery, or from some viscid
sloughy Matter lodg'd in the first Passages, which may hin-
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der a fufficient Quantity of Chyle entring into the Mafs of Blood. But I don't mean fuch, but thofe, who, upon full Experience, are found to be in as found a State of Health; as they have ever been known to be in at any time, but are bled or purged, or have Cordials given them at fuch times as are prefcrib'd in Farrier's Books, or have otherwife obtain'd by Cuftom.

But that I may not be thought too peremptory on this Head, or to deviate too far from a Method that has been fo univerfally received; I fhall therefore lay down fome few Cafes wherein Bleeding, or other Evacuations, may be made, even when there are no Indications to be taken directly from Sicknefs; but thefe too are difcretionary, and to be gone about with Caution; as for inftance, if Bleeding be moderately and fparingly us'd, it may be of fervice to young Horfes, efpecially after hard Exercife, or after a Journey in a hot Season, becaufe either the one or the other is apt to augment the Blood's Motion too much, which, before it has any ill tendency, may be thus remedy'd. But yet this may not be often neceffary to Horfes that are accuftom'd to conftant Exercife, as Hunting; or thofe that travel all the Year, as Stage-Horfes or Poft-Horfes, but only to fuch as are more habituated to Eafe. *Secondly*, A Horfe that has been much us'd to ftanding in the Stable, and has but feldom Exercife, may alfo have a Vein opened upon Suspicion of the Blood's growing too vifcid, and ftagnating for want of due Exercife; becaufe, while he is thus kept, a Difeafe may infenfibly, and by degrees, be creeping upon him, while there is yet no Indication given from fenfible Signs. *Thirdly*, If a Horfe has ftumbled into a Pit of Water, or a deep Ditch, and has continued fome time therein, though he does not immediately give Signs of Sicknefs, yet fuch Accidents are a fufficient Indication both for Bleeding and other Remedies, becaufe the Adftriction of the Pores, occafion'd by the Coldnefs and Prefsure of the Water, may caufe a Fever, or a violent Cold, that may end in the Glanders, or fome other fatal Diftemper.

The fame Cautions may be alfo obferv'd as to Purging, and that fhould never be gone about barely at a Venture, but when the Farrier or Owner may have fome Suspicion at leaft; as, for want of Exercife, eating unwholfome Food, or drinking bad Water, or the like, whether that proceed from Careleffnefs or Neceffity. In thefe, or fuch like Cafes, Bleeding or Purging may be ufed by way of Prevention; and

and I should the rather so far give into those Methods, with respect to brute Creatures, because several of their Diseases may actually have some footing before they can be well discern'd. But yet, as there is even in all these Cases an Indication given, at least from foreign Causes, what has been here advanced, will not justify the Conduct I am censuring, which is only administering things at random, and which therefore often prove prejudicial.

I shall therefore venture to affirm, that unnecessary Evacuations cannot be the Way to prevent Diseases in Horses, but that may be better effectuated by a due Care in their Keeping.

A due Care in Keeping, the properest Way to prevent Sickness.

All Evacuations lessen the Quantity of the Blood, but most immediately Blood-letting; and when that has been frequently repeated, or been taken away in a large Quantity, it often becomes languid in its Motion, by a lesser Quantity of Spirits, deriv'd from a lesser Quantity of Blood, so that what remains has not Force enough from these Spirits to reach the Passages of the Skin, so as to make a Secretion there; and from hence, instead of preventing Diseases, it becomes the Cause of many. Purging has also the same Effect, though after a different manner, and may be of a worse Consequence to Horses, as all such Evacuations act more directly against Nature, and in such a manner, that the whole animal Frame, when the Medicines happen to be of any strength, is discomposed by them; and thus a Horse that was in Health, is exposed to all the Injuries that can proceed from any Element. But in good and proper Keeping, all these Accidents are avoided, and the same thing effected.

The best Way therefore to prevent Horses being diseased, is, in the first place, to have no kind of Food given them but what is wholesome, and their Drink should be Rain-water, or that of the running Brook, if such are to be had.

Secondly, The next thing to be regarded is Exercise, especially since the Health of all Animals depends so much upon the Blood's regular Motion, for without that it is impossible but that it must be apt many times to stagnate; whereas if the Body is often kept moving, the Blood is not only forc'd through the smallest Veins and Arteries, by the several Contractions of the Muscles, but all the little Glands and Strainers throughout the Body are thereby forc'd to discharge their several Contents, which must be a great Means to preserve Health.

Thirdly,

Thirdly, The Exercise of a Horse ought to be proportion'd to his Strength, and likewise to his Feeding; for a Horse that is of a weak, delicate Make; cannot bear much Exercise, neither must that be violent, but gentle. In like manner, a Horse who has but short Feeding, cannot bear so much, nor such hard Exercise, as if he was kept high.

Fourthly, A Horse should be gently used when he is full, because at that time, besides the Prejudice done him by the Weight of his Stomach, the Blood receiving from thence fresh Supplies, will be apt to cause a Plenitude and Fulness of the Vessels, which may either occasion a too great Rarefaction, or a Stagnation, especially in the Lungs, by reason of their near Communication with the Heart, and their frequent Distention with Air; and Horses that are of a large and heavy Make, ought to be rid more gently at all times, than those that are light and nimble.

Fifthly, No Habit should be broke suddenly, but by degrees; for instance, if a Horse has been used to travel, he ought to be walk'd out, and rid more or less for some time thereafter; because during the time of Exercise, the Blood must have acquir'd a more than ordinary Aptitude to Motion; and therefore it will be ready to stagnate in some remote Parts, where the Vessels are small. The same Rule is also to be observ'd with respect to Horses newly taken up from Grass, because they have been used both to Exercise and Air, while at their Liberty in the Fields. Neither must a Horse that has been used to feed plentifully, be suddenly reduced to a low Diet, because he will be apt to grow faint, and oftentimes sink in his Spirits, which may occasion very great Disorders, by reason the Quantity of the Blood is of a sudden render'd too small, in proportion to the Capacity of the Vessels. And, on the contrary, a Horse that is low, must be fed but gently, and brought to good keeping by degrees.

Sixthly, A due Regard ought to be had to Dressing, because rubbing and combing is a sort of Exercise, especially to a Horse of Mettle, it promotes the Motion of the Blood in the extreme Parts, and greatly helps the cuticular Discharges; and therefore a Horse that has been used to good Dressing should never go without it, lest the Pores of the Skin become suddenly obstructed, which must unavoidably cause some Disorders. But if a Horse has never been used to any regularity, as to his Feeding, &c. which is the Case of some Drudges, the best way is to continue in the same

same want of Method with respect to them; because we often observe the bringing any such into regular keeping, at first proves generally of ill consequence to them; and that for several Reasons, which I need not here mention.

From these general Directions, the Reader may be able to form such other Rules, as may be of use, not only to prevent Sickneſs, but may alſo be the Means of bringing Horſes to a better State of Health, without hazarding their Conſtitutions with the repeated uſe of Phyſick, as is very cuſtomary in this Kingdom; and proceeds from thoſe Perſons, who are uſually intruſted with the Health of our Horſes, not being acquainted with the Mechanifm and Oeconomy of animal Bodies. I have been the more encourag'd to make ſuch Obſervations, becauſe ſome of the moſt judicious Farriers have been from Experience convinc'd of thoſe Errors, and are able to call to mind many Inſtances, of Horſes they have known to be prejudic'd by an unreaſonable and unneceſſary Uſe of Phyſick; and methinks it would be a common Benefit to Mankind, ſo far as Horſes are ſerviceable to us, if thoſe Prepoſſeſſions could be baniſh'd, and all ſuch ſuperfluous Practice quite diſus'd and laid aſide.

CHAP. V.

Some general Rules to be obſerv'd in Bleeding and Purging.

HAVING, in the foregoing Chapter, taken notice of ſome of the Errors committed in Bleeding and Purging, I ſhall in this lay down ſome general Rules to be obſerv'd in theſe Operations.

And *First*, Concerning Bleeding, there is not any Operation more ready, or indeed more uſeful. As nothing can, in many Caſes, give ſuch immediate Relief; for by Bloodletting, the Heat of the Blood, and conſequently its Velocity, proceeding from whatever Cauſe, may be thereby abated: and not only its Velocity and Heat, but alſo its Viſciduity, whether from an acid, or from any other coagulating or thickning Matter, may in a great meaſure be deſtroy'd; and therefore, in all Caſes where the Blood is too much agitated, and in motion, or where it is too much thicken'd, Bloodletting is requir'd.

But

But we shall lay down some of the particular Indications, which chiefly call for that Operation; and in doing thereof we shall not tie any one up to Times and Seasons, or particular Influences, which we find so much observ'd in Books of Marshalsy, and in old physick Writers; for, according to their Doctrine, some Part of the animal Body must have been diseased every Month. All the Caution therefore, that is to be had in that Respect, is only to avoid it as much as possible in the extremities of Heat and Cold, excepting when some urgent Necessity requires it.

Now the Signs that require Blood-letting, *The Signs that*
are first, an over Plenitude or Fulness; which *require Blood-*
may be discovered in a Horse, because such a *letting.*
one will be apt to be purfivè when he is put
to any kind of Exercise, and his Stomach will somewhat
abate. In such a Case bleeding cools and refreshes a
Horse wonderfully.

Secondly, Blood-letting is proper in the beginning of almost all Fevers, whether simple or complicated; that is to say, whether the Fever consists simply in an Augmentation of the Blood's Motion only, or when the Blood is besides that vitiated. But Care must be taken, if the Distemper takes its Origin from the want of Blood, as very often happens after large Hemorrhages, or after long scouring, or after a too plentiful use of Evacuations, or when a Horse has been some time in a declining Condition; in such Cases, tho' some Indications may, perhaps, require Blood-letting, yet it is to be us'd sparingly.

Thirdly, A Horse ought to be bled for all Swellings and Impossthumations, when they happen to be situated on any Part of the Body, so as to endanger a Suffocation, or any other ill Accident; but if there be none of those Appearances, and at the same time have a tendency to Suppuration, Bleeding ought not to be perform'd, because that would be manifestly to oppose Nature, who herself is endeavouring to throw off what is hurtful to her in another way; but in Swellings of the Legs, occasion'd by the Grease, Blood-letting is not only safe in the beginning, as it may make a Revulsion, but necessary before they are much inflam'd, or come to break; because this Distemper at first proceeds chiefly from a Stagnation of the Blood in the extream Parts, from the Smallness of the Vessels, &c. and not from any manifest Disorder in the Blood itself. But of this in its proper Place.

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Fourthly,

Fourthly, Bleeding is necessary in all violent Pain, whether that proceeds from an internal or external Cause, as Wounds, or Bruises; and in case of inward Pains, as from an Inflammation of the Lungs and *Pleura*, or the Liver, when they can be discover'd; and then the Operation may be once or twice repeated; but in Pains of the Stomach and Guts, proceeding from slimy and viscid Matter lodg'd in them, unless the Farrier could also be assur'd these were accompanied with Inflammation of those Parts, it is better to forbear it; because in such a Case, if a Revulsion be made, the Blood may be too much divested of its Spirits, and Nature balk'd of her design of expelling what she finds hurtful to her.

Fifthly, Blood-letting is moreover necessary in Vertigoes, and most Disorders of the Head; and in the beginning of all Colds, by which Defluxions are apt to fall on the Lungs, and Rheums into the Eyes. And here I cannot omit taking notice of an Error in the *Sieur De Solleysell*, who forbids Bleeding in Diseases of the Eyes. It is not improbable that Author may have observed some ill Consequences from this Operation, but it has been in such Cases as proceed from *Exinanition*, that is, when the State of the Blood is very low; for then that which is carried into the extreme Parts, very often stagnates, from the want of a sufficient force in the Heart, to drive it forwards into those Parts; and when the succeeding Fluid has not force enough to impel the antecedent Blood; so that if a Disease happen in the Eyes from any such Cause, the lessening the Quantity of the Blood, which is already too small, must needs occasion some very great Disorder in those Parts, if not absolute Blindness. But in all such Cases as proceed from an Over-fulness, or from hard riding, which drives the Blood faster into the outward Parts, than can be readily return'd by the small capillary Veins; or if these Disorders proceed from the Blood's being too viscid, by which means it loiters in the small Vessels of the Eyes; Blood-letting must then do very great service, and is often practis'd among Horses to very great purpose. For the same Reasons it may be useful in the Farrin, the Itch, and all Diseases of the Skin.

Lastly, There must be constant Care taken of the Age, Strength, and Constitution of all Horses. A young Horse, though he be more subject to Diseases, as has been already observ'd, will, however, much sooner recover the Loss of Blood

Blood than a Horse that is full aged ; and a full aged Horse sooner than an old Horse, because all young Animals are vigorous in their Appetite and Digestion ; but yet a full aged, or an old Horse, if either be hardy and strong, may overcome all Losses of this kind, better than some young Horses, who are of a washy and delicate Make. But I shall now proceed to Purging.

I need not offer to explain what is meant by Purging, since every one knows that it is the discharging of Humours and Excrements thro' the common Passages of

*In what Cases
Purging is
chiefly necessary.*

the Belly. The Way this Operation is performed, is with such Medicines, as by their Irritation stimulate the Membranes of the Guts, whereby the *Peristaltick* Motion is quicken'd, so as to shake off their Contents. But if the Dose or Potion happens to be large, or if it be made of such things as abound much with those stimulating Particles, or, to express it after the common way, if very strong Physick be given, it not only carries off what is contain'd in the Guts, but likewise causes such frequent and reiterated Twitches, as drives a more than ordinary quantity of Blood into those Parts, whence is separated and discharged abundance of *Serum*, which is thrown off by the common Passages abovemention'd. And hence it is evident, that Physick may be so order'd, as to carry off more or less of the Substance of the Blood, according as the Dose is enlarged or diminished, or as it abounds more or less with those purging Particles ; and consequently that it may be render'd either profitable or hurtful, according as it is managed.

I shall not here detain the Reader with the manner of preparing the Body for this Operation ; neither shall I lay down Rules for rendring this or that sort of Humour fit for a Discharge by Medicines, which have been ignorantly, but with much Industry devis'd, to prepare Choler, Phlegm, or Melancholy ; that sort of Practice being now justly expos'd as uncertain and ridiculous, since it is very plain, that all purging Physick differs only in the degrees of Strength, and works no otherwise on different Humours, than as it is able to reach only those that are near, or such as are more remote from the Guts, where its principal Scene of Action lies. What particular regard is to be had to those things, will be sufficiently shewn hereafter. I shall therefore only in this Place lay down some general Directions,

which, I hope, will be of Use to all who practise among Horses.

First of all, Purging may be necessary in most or all *Plethorick* Cases, especially after an Evacuation has been made by Blood-letting, and the Body render'd somewhat cool and lightsome; for if a Horse be purged when his Body is very full, it may, unless the other Secretions are also free, occasion, during the Operation, a too great hurry in the Blood's motion, bred from too great a quantity of Blood; or, by deriving too much Blood into the Intestines, may occasion an Inflammation of the Guts. For the same reason Horses, that are *Plethorick* and full of Blood, ought only to have mild Purges given them.

Secondly, Because a Horse can seldom or never disgorge himself by Vomit; gentle Purging may therefore be allowed in Disorders of the Stomach, before other things are administred.

Thirdly, Purging is the most necessary Remedy for all foulness in the Guts, for the Expulsion of all viscid, ropy Matter, and in all Cases where a Horse is infested with Worms.

Fourthly, It is a great relief in Costiveness, especially after suitable Clysters have been first administer'd. And it is moreover useful in all scouring and looseness of the Belly, when perform'd by such Medicines as afterwards constringe the intestinal Glands. But in this Case many of the tribe of purging Medicines may be very hurtful, and occasion either a too great Relaxation of those Glands, or an Inflammation of the Guts, by their too violent and harsh Operation.

Fifthly, In all Cases where there is a gross Habit, with a tendency to Swellings in the Limbs, or any other part of the Body, Purging is necessary: As also in humid and watry Diseases. In Disorders of the Liver, causing the Jaundice, and in many of the Diseases of the Eyes it does manifest Service, by the Revulsion it makes from those Parts, and in most Aliments of the Head, where there is no Fever, but only a Stagnation in the Blood, in some of the small Capillary or Hair-like Arteries. For Purging in such Cases, not only drains off part of the superabundant Matter, but also, by putting the Blood into a brisker Motion, causes a Separation of its grosser Parts, so that it moves with more freedom and easiness in all its Canals, and is thereby brought more readily to the Secretory Offices.

But

But in this Operation, as well as in Blood-
ing, a particular regard ought to be had to
the strength of every Horse, because the ir-
reration that this kind of Physick makes in the
Stomach and Guts, when it is powerful, oc-
casions such disorderly Agitations in the Blood and Spirits
as cause violent Sickness, attended with cold, damp Sweats,
and sometimes convulsive Motions: And all this I have
seen frequently happen to Horses while under this Opera-
tion; and therefore they ought not only at that time to
be carefully look'd after, but their Physick should be qua-
lify'd with such Mixtures, as will prevent it from adher-
ing too closely to any parts of the Guts.

*In Bleeding
and Purging
the strength of
a Horse to be
regarded.*

But what relates to this, and all other Operations, will,
I doubt not, be perform'd to the Farrier's Satisfaction in
the sequel of this Treatise, where all those general Rules
shall be justly and methodically apply'd.

C H A P. VI.

Of the Fevers of Horses in general.

MOST of those, who have treated of the
Diseases of Horses, have defin'd a Fe-
ver to be a preternatural heat of Blood: And
the *Sieur de Solleysell* has compar'd it to the
" Ebullition of Wine in a Cask, where the Liquor being
" agitated, heated, dilated, and fermented, and having no
" Vent, breaks impetuously through all Obstacles, spread-
" ing its Steams and Vapours all around, and appears so
" muddy, that we cannot discern the least Drop of Wine
" in the Vessel. But after these disorderly Motions, all
" the Impurities that were in the Wine are separated; the
" Lees fall to the Bottom, a sort of Scum floats on the
" top, and the Concavity of the Vessel is covered with a
" sort of crusty Substance." This Comparison between
the state of the Blood, and Wine thus pent up in the Cask,
is, according to that Author, a true Idea and Representa-
tion of a Fever, which, as it is obvious to Sense, will, no
doubt, satisfy a good many Readers; but yet, as the A-
greement is only in some few Circumstances, and not in
the whole, I shall therefore give a short Account of a Fever,
as it is founded on the Structure of the Blood, and the
Vessels in the which it flows.

*The Sieur de
Solleysell's O-
pinion concern-
ing a Fever.*

But, first, it will be proper to distinguish between a Fever that is simple, and that which is complicated and accompany'd with some other Disease. A simple Fever consists only in the Increase of the Blood's Velocity; that is to say, when it runs more swiftly through all its Channells than is usual, but preserves an Uniformity in its Motion. Whereas a complicated Fever has, besides the Increase of Motion in the Blood, several other Symptoms; and these Diseases, which are Concomitants of such Velocity in the Blood, are often the Cause of those Fevers, in which the Motion of the Blood is not regularly and uniformly augmented, but is disorderly, admitting of divers Periods.

A Fever explained.

The Blood, as all other Fluids, being made up of liquid Parts, is therefore capable of being put into a more than ordinary degree of Motion, both by external and internal Causes. When the Cause happens to be simple and external, as for instance, when the Blood is violently agitated and put in motion by the Heat of the Sun, or by violent and excessive Exercise, then the Fever will be only simple: In such a Case the Blood is melted, and, like Wax, requires more space in the Vessels, than when in its ordinary State; and likewise as it becomes more thin and fluid, its Motion increases; which is obvious enough, because all thin Liquors will move with more Velocity and Swiftnefs than those that are thick; and because a Liquor that is of a thin Texture, will pass through those that are more large, without any opposition; therefore all such Fevers are regular and uniform. But when a Fever proceeds from any ill Quality in the Blood, as for instance, if the Blood be too thick or viscid, so as to occasion Obstructions in those Vessels that are the most minute and small, the Blood being obstructed there, and meeting with opposition, must needs occasion great Disorders, while it flows in greater quantity than ordinary into particular Parts, and while it endeavours to find out proper Vents and Passages for itself. Now in both these Cases, the glandular Discharges must, in a great measure, be hurt. But in those Fevers that are complicated, some of those Vents may be too much obstructed, while others are too free and open. And hence it is, that Nature is so much put to it in all Fevers; for in those that are the most simple, she is overpower'd by a too great quantity of Blood, occasion'd by a too great Rarefaction, whereby it takes up more space than usual in all the

the Blood-vessels, which moves with so much rapidity as to discompose the whole Body. And in those Fevers that proceed from vitiated Blood, and are the Effects of some other Disease, she is oppress'd by violent Impulses and irregular Discharges, before the Blood can become of such a Texture and Make, as to render it fit to pass equally into all Parts.

And therefore it is to be observ'd, that whatever Changes the Blood undergoes in all the different kinds of a Fever, so long as the Disease lasts, these Changes must have a tendency either to an over-great Rarefaction or thinness, or else to an over-great thickness, or to an Inequality of the Substance of the Blood, whereby some Parts of it will pass more easily than others through the smallest Vessels; all which may at one

All Fevers have for their immediate Cause, either a too great thickness, or thinness of the Blood, or an Inequality of its Substance.

time or other produce the Symptoms common to all Fevers, to wit, a violent and excessive Heat, and beating of the Arteries, &c. This is so clear and evident, in case of an over-great Rarefaction and thinness of the Blood, that it needs no manner of proof, since Heat must always be the Effect of Motion. And, on the other hand, when the Blood happens to be too much coagulated and thickened, and when it is render'd of too adhesive and gluey a Nature, whatever be the figure and size of its Particles, or whatever other Qualities may be in it, it must certainly be obstructed in the smallest Passages; and these Obstructions in the smallest Passages, must give it a more than ordinary degree of Motion in those Vessels that are large enough to receive it, and consequently its Heat must also be augmented.

But this will be the more easily understood, if we consider that the Arteries, which carry the Blood into all Parts, grow gradually smaller, the farther they advance from the Heart; and that there is a proportionably less distance between their Branches, and towards their Extremities, as the distance between these capillary Branches grows still smaller, resembling the little Filaments on the Leaves of Trees. It is also to be taken notice of, that, according to the latest Discoveries, the sum of all the Orifices of the succeeding Branches of every Artery, is larger than the Trunk from whence they arise, which must be so great a benefit to Nature, that unless

In what manner the Blood will cause a Fever when it is too thick.

those Vessels had been of such a Texture, it would have been impossible for any animal Body to have been supported under the least Disorder. But notwithstanding this wise Contrivance, the Blood is still very liable to Obstruction whenever it happens to be too thick or viscid. And as all such Obstructions must rationally happen in those Parts where the Vessels are of the smallest Texture, that which flows in those that are larger, must of consequence move with greater Rapidity; because, as has been already hinted, when it meets with Opposition in its Course forwards, it must deviate in greater than ordinary quantity, and with greater Force, into the nearest lateral Branches.

Nature furnishes us with few Similitudes that would be of any Service to illustrate this sort of Mechanism, unless a general Resemblance could be sufficient. Neither does Art assist us otherwise than by Mathematical Experiments, which would not be easily understood but by those who have some insight into them. But that this

*An Observation
taken from
Water running
in Pipes, &c.*

may be made as plain as possible, we shall suppose an Artery to be like a Pipe, which grows gradually smaller, according to the number of Branches it sends forth. We must also suppose this Pipe, and all its Branches, to be constantly filled with Water from some Fountain, and this Water perpetually running from the main Trunk into all these Branches: We must in like manner imagine the Extremities or Endings of those Branches to be so small, as to be easily choak'd up with Sand or Clay, or any other kind of Matter; and therefore when any such Matter happens totally, or in part, to obstruct one or more of these small Passages, the Water meeting with Resistance is forced back again, and is taken up by those Branches that are the nearest; so the Branches, which are antecedent to those that are thus obstructed, receive not only a more than ordinary quantity of Water, but this Water is also increased in its motion in proportion to the Force by which it is repuls'd; and likewise by that of the Water, which is antecedent to it, which being also in Motion, must resist its returning the same way it came; and, by giving a new *Impetus* to the Water thus repulsed, must drive it with the greater force into the lateral Branches. And this will appear still more manifest from the instance of a large Stone thrown into a very small Brook or Rivulet, which taking up some Space, and dividing the Stream in the middle,

middle, the Water that runs on each side will move with greater Rapidity than that which is either before or behind.

From all which it is evident, that Obstructions in the small Capillary Arteries, as they are the cause of a greater and more violent Motion of the Blood in those that are larger, must occasion a Fever; but especially as such a Motion may bring on a subsequent Rarefaction in the Blood; because whatever agitates the Blood, and puts it in a more than ordinary degree of Motion, must occasion more frequent Contractions of the Heart, and also of the Arteries, whereby the Blood must, without doubt, be comminuted, and its Parts render'd more small. In like manner an overgreat Rarefaction may be the cause of a Coagulation of the Blood; that is, when the Blood happens to be too much rarefy'd, as in the beginning of a legitimate Fever, the thin *Serum* being expended in a greater than ordinary quantity, will leave the remaining Mass thicker, and more unapt to motion, whereby several changes and alterations may be reasonably expected: And now since the Extremities of the Veins, which communicate with those of the Arteries, are but little different from the Arteries themselves, save only that they take a contrary course, and that the Blood moves in them backwards towards the Heart; whereas in the Arteries it moves from the Heart towards the Extremities: And as the motion of the Blood in these small communicating Branches of the Veins, is chiefly owing to a continual Succession of Blood from the Arteries; when once therefore it gets into them, its Motion cannot be easily retarded, unless in the Extremities of the Limbs, where its ascent upwards must, no doubt, be a great hindrance to it. And this is the reason why, in several kinds of Fevers, especially in those where the Blood happens to be of unequal Composition, *viz.* when it is thicker in some parts than others, the Pulsation of the Arteries must also be unequal; because while its grosser Parts are detain'd in the smallest Veins and Arteries, the Blood must move with more Velocity in some of the other Vessels, for the Reasons already alledg'd; but as soon as this Lensor has work'd it self into the more capacious Veins, which grow wider the nearer they approach the Heart, and that a thinner and more attenuated Blood supplies its place in those small Branches, then the Pulsation becomes more moderate and uniform, and the Fever is remov'd, at least for that Season.

But

But in all Fevers whatsoever, it is manifest, that the various Changes made in the Blood, whether these are caused by an over Rarefaction and thinness, or an over thickness, must affect the Secretions; but in those that are complicated, they must occasion some of them to be too liberal, while others are too sparing; and may also occasion one Secretion at one time to be too open, and at another time too sparing.

How the Secretions may be affected in Fevers.

And thus far we may here advance concerning the Secretions, that in all such Fevers as proceed from an over Rarefaction, the serous part of the Blood, being render'd more than ordinary thin, must needs go off in too great a quantity, while the grosser Parts may be detain'd by the larger Vessels, which compose the solid Parts, pressing upon those that are smaller, especially towards their Entrance into the Glands; so that by virtue of a superior Weight in the larger Vessels, nothing but the thinner parts of the *Serum* can pass through them; and that Expenditure of the thinner Parts of the Blood, if it is not stopp'd in due time, will leave the remaining Mass too thick, whereby other Symptoms will be engender'd, and such as are common to Fevers of a more complicated Kind: And when such a Change happens, the Blood must lose its regular and uniform Motion, and the Disease will no longer constitute one continued Fever, of one Period only, but admit of divers Periods.

Now when such a Change happens in any simple and continued Fever, or if this has been the state of the Fever from the beginning, the Secretions must be irregular; for seeing the Entrance into all the Glands is not the same, but that these Passages are of divers capacities and sizes, the Parts of the Blood and *Serum* not being sufficiently comminuted, and render'd so small as to enter into the smallest secretory Offices, must therefore, when they meet with opposition, and are deny'd admittance into them, enter in an over-great Quantity into those that are large enough to receive them. And thus we may easily form an Idea how several Ferments may be engender'd in the Body during the continuance of such Fevers, especially if it be consider'd, as was observed in another place, that a Liquor consisting of but few Principles, may, by their various Combinations, produce a great variety of different Liquors. And therefore since the Blood is a Fluid consisting of different Principles, and undergoing so many different Changes, while its Secretions are thus distemper'd and irregular, it may, no doubt, be so ferment-

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ed by its various Mixtures, as to occasion all those evil Symptoms, which are discovered in the animal Body, while Nature is endeavouring to throw off what is offensive and burdensome to her.

After this short Account of Fevers in general, it follows that we take notice of their several Kinds, as they have been distinguished by their different Names and Appellations, wherein we shall deviate as little as possible from the Method of those who have gone before us; that such as have been used to the Writings of *Solleysell*, *Markham*, or any other of that Tribe, may not be too much bewilder'd by the perusal of what they shall here find new upon the Subject.

We have already divided a Fever into that which is simple, and of one Period only, and that which is complicated, and accompany'd with some other Disease. Under which Division may be reduc'd all sorts of Fevers; but a simple Fever stands singly by itself, and is that which, properly speaking, constitutes a true Fever; and therefore all Fevers may be termed more or less *simple*, as they are made up of fewer or more Symptoms; for the fewer Symptoms there are in any Fever, any such Fever will be the more simple, and will approach the nearer to that which consists only in the regular Augmentation of the Blood's Motion: And, on the other hand, the more Symptoms there are in any Fever, it will be the more complicated, and participate the more of other Diseases. All therefore that shall be said concerning the particular Fevers of Horses, shall be reduced to those that are *Simple* and *Continued Fevers*, *Hectick Fevers*, *Putrid Fevers*, and those that are called *Pestilential Fevers*; and lastly, all such as are intermitting, whether these be *Quotidian*, *Tertian*, or *Quartans*. As for those proper to the Seasons, *viz.* the Autumnal and Vernal Fevers, &c. which *Markham* has taken notice of, they may be reduced to one or more of the abovemention'd kinds, though perhaps not with respect to their whole complex Symptoms, and indeed in that Sense there is no Fever directly the same, but may vary in some Circumstances: For seeing the Bodies of all Animals are numerous, and are infinitely compounded, and made up of Vessels which are infinitely different in size and magnitude; and as the Fluids contain'd in these Vessels are capable of different Changes and Modifications, it cannot therefore be expected, but the same kind of Fever may have different Symptoms in one Horse from what they are in another; and

The different kinds of Fevers.

and this Variation may be in Proportion to the size and make of the constituent Vessels of different Horses, &c. But if the Farrier will only endeavour after a competent Skill in the Animal Oeconomy, he will be the better able to suit his Methods of Cure, to the several Indications that may proceed from any such Variety.

C H A P. VII.

Of a simple continued Fever.

A simple legitimate Fever.

THIS Sort of Fever is not the least common among Horses, neither is it very difficult, but may be easily cured, especially in the beginning. It consists in an equable Augmentation of the Blood's Velocity, as has already been observ'd, and may proceed from divers Causes: As first, from riding in very hot and dry Weather; for by that means the Blood being once set in Motion, it thereby becomes rarefy'd, and the external Heat contributes to keep up both the internal Heat and Rarefaction thereof.

Secondly, This Fever is sometimes brought on Horses by turning them out to Grass in hot and dry Weather, and into small Inclosures, where there is but little Air, and where there is not some convenient Shade to cover them from the scorching heat of the Sun.

Thirdly, The eating hot and spirituous Herbs, or other Food, that communicate too great a heat and warmth to the Blood (especially until a Horse has been habituated to such Feeding) will be the Cause of such a Fever.

Fourthly, This sort of Fever is sometimes caused by Bleeding Horses in the heat of the Sun in the hot Season, without housing them; because during the time of the Operation, the Blood is put into a greater Motion than before; and that new Motion is further increased and kept up by the additional heat of the Weather, as has been observ'd: And this may be illustrated by the common Effects of Fire under a Pot or Kettle, where the heat of the Water increases more in the same spaces of time, according to the degrees of its Motion, though the Fire be not increased.

Fifthly, External Cold will sometimes bring on such a Fever, by hindring Perspiration, especially when its Effects are sudden; for in such a Case the quantity of the Blood must be suddenly increased, and that increase will be followed by an immediate and speedy Rarefaction of the Blood.

And

And here it may be observ'd, with respect to Causes and Effects, that the same Cause will sometimes produce different Effects; and the same Effect will often proceed from different Causes, as in the Instance last mentioned: For Cold, when its Effects are sudden and universal, will cause a sudden Rarefaction in the Blood, by obstructing most of the Passages of Perspiration; but when it is partial or gradual, it will have a different Effect. But the different Effects which we observe from the same Cause, or the same Effect proceeding from seemingly opposite Causes, may only arise from the different degrees of Efficacy in the Causes themselves, whereof we cannot be exact and competent Judges, especially as they are exerted on the animal Body, which is infinitely various in its Composition and Structure; and moreover as these Causes are also complicated; and therefore when we speak of different Effects proceeding from the same Cause, and, *vice versa*, of the same Effect proceeding from different and opposite Causes, we are to be understood, not in an abstracted philosophical Sense, but as this is most obvious to our common Apprehensions of things; which Difference we shall endeavour to account for in the most rational way we are able, and that as often as we shall find occasion.

But, *Lastly*, If the Affections of Horses can be enough permanent and lasting, so as to bring on Diseases, according to some Writers, such a Fever, as this we are treating of, may take its beginning from Rage and Fury, since nothing contributes more to the Rarefaction of the Blood, and the increase of its Motion. And therefore those Horses who have felt the Pleasures of Love, and have been afterwards restrain'd from Copulation, but yet have had Mares frequently expos'd to them, must be most in danger from such Causes.

But we shall now proceed to the Signs, which in a simple and continued Fever are, *The Signs of a simple Fever.* violent heat and fulness of the Vessels, which will even appear to the Eye; a Beating of the Heart and Flanks without intermission; a dryness on the Roof of the Mouth and Palate, with a roughness on the Tongue; continual Watchfulness and Restlessness, insomuch that if a Horse be seiz'd in the Field, he will be perpetually moving from Place to Place, going often to the Water, but not being able to drink, he will smell at the Ground in many Places without Feeding, but discovering a great Delicacy from the
want

want of Appetite: And if a Horse in such a Condition happens to be in the Stable, the same Signs will also be apparent; and he will, moreover, be apt to strike at any one that comes near him, though at other times tractable and easy.

In what manner these are to be distinguish'd.

But here I must also take notice, as concerning the Signs, that nothing is more carefully to be look'd into than they, because the same common Signs are often exhibited in Diseases that are different, and require a different Method of Cure. But this is not so conspicuous in other Distempers as in Fevers; for which reason the Farrier must always have recourse to the Causes, whereby he will be the better able to form a right Judgment; and that this may become the more easy to him, we shall go over those Signs more particularly, as they arise from common Effects, but are produc'd of their proper Causes, and may therefore be distinguish'd from the same Appearances in more complicated Fevers.

First then, it may be observ'd, that Heat, and beating at the Heart and Flanks, is a Sign common to all Fevers. But in a Fever that is simple, the Heat is permanent, and the Pulsations regular; whereas in a Fever that is complicated, neither the Heat nor Pulsations are regular, but are sometimes more, sometimes less observable; and in some, as in intermitting Fevers, the Disease goes quite off, and only returns at certain times.

Secondly, In a simple Fever, the driness on the Roof of the Mouth and Palate, and the parch'd roughness of the Tongue, are perceivable from the first Appearances of the Disease, as they proceed from an over-great Expence of the thinner Parts of the *Serum*; but in other Fevers these Signs are not so suddenly exhibited.

Thirdly, Tho' other Fevers may be accompany'd with want of Appetite, yet this Sign seems more peculiar to simple Fevers, being the constant Effect of an over-great Rarefaction and thinness of the Blood, whereby it takes up more space in all the Vessels of the Stomach, even so as sometimes to occasion Inflammation; and this Distention of the Vessels must take off the Sensation of Hunger, and create a Loathing, which is also the Reason why, notwithstanding that the Heat and Parchedness makes a Horse thirst often in this kind of Fever, yet he drinks but little at a time.

Fourthly, The same Plenitude of the Vessels in the Stomach, as also in the circumjacent Parts, *viz.* the *Pleura* and

and *Midriff*, and moreover in the Lungs themselves, is the Cause of the heaving of the Flanks, whereby the Lungs are depress'd too close on all sides, upon which the Passages of Respiration become obstructed; whereas in other Cases, the same Signs may be exhibited from the want of Spirits, by which means the Action of the Muscles, which elevate and depress the *Thorax*, must be hinder'd; but this may be easily distinguish'd, by an Insensibility and Liffeness to Motion; as may also an Inflammation of the Lungs or *Pleura*, from the manifest Signs of insupportable Pain, as shall be observ'd in its proper place.

Fifthly, Albeit Pain is a Sign common to several kinds of Fevers, yet it is more violent in this than in any other, as the Pain proceeds from an over-plenitude and fulness of the Vessels; and therefore when we observe a Horse apt to shrink or strike, as often as any one comes near him, but especially upon offering to touch his Back, we may suppose this to be occasion'd from pain in the Back and Loins, arising from an over-distention of the *Aorta*, or great Artery, that Vessel lying open and unguarded, and having no store of Muscles to environ and support it. The Farriers oftentimes, in this sort of Fever, when they observe a Horse unwilling to have any one lay Hands on his hind Parts, believe it to be the Sign of a sway'd Back, and make their Applications accordingly. But we shall have an Opportunity of putting them right in this Particular hereafter.

Lastly, The constant Watchfulness and Restlessness, which is so observable, and seems, in a great measure, peculiar to a simple Fever, is also the result of a very great Rarefaction and thinness of the Blood; the animal Spirits will therefore be the more easily separated from so loose a texture, and the Vessels, being at the same time full, must therefore press upon the Nerves, causing a continual flux and reflux of the said Spirits, from whence must undoubtedly proceed Watchfulness and Restlessness. But in Fevers of another kind, these Signs seldom or never go together; but if a Horse be watchful, he is, perhaps, at the same time sluggish and heavy; or if a Horse be restless, and sometimes in a moving Posture, he does not continue long so, but becomes dull and unactive by Intervals, especially if the Blood is of unequal Fluidity; for in such a Case, when the viscid and tenacious Parts are got into the small hair-like Vessels of the Brain, there must at that time be

be a very small quantity of animal Spirits separated from it; but when the more fluid Parts take place in those Vessels, perhaps an overgreat quantity may be secern'd, and then the Disease will resemble that of a simple and continued Fever, excepting only that these Symptoms are not, as in a simple Fever, of any long continuance, but soon change into others. And therefore since the same Disease will often put on different Appearances, the Farrier can never be too careful in examining into every Circumstance, that he may not rashly administer his Cures upon every slight Observation, as is too common, but wait till the Distemper gives Indications of what is truly necessary to be done.

Having thus laid down the Causes and Signs of a simple and continued Fever, together with the way and manner by which it may be distinguish'd from other Fevers, it re-

The Cure of a simple Fever.

mains that we go on to the Method of Cure, wherein we are principally to observe, that since there can be no Accidents in this sort of

Fever, but what depend upon the Augmentation of the Blood's circular Motion; and while in this State, the Blood is not suppos'd to be any wise, or, at least, but little vitiated; those things are only to be done, or administer'd, that will lessen the said Motion, and bring the Blood to a more quiet and sedate State; and, in order thereunto, Bleeding is, in the first place, to be preferr'd. After Bleeding, recourse must be had to Clysters, and to all such things as will just keep the Body cool and open, for by this Method alone a simple Fever is to be cured.

First, As to the Bleeding, if it be in Summer, while the Horse is at Grass, he ought to be hous'd; and if the Symptoms are not very urgent, the Cool of the Morning is the best and properest time for the Operation, because the external heat contributes very much to the increase of this Distemper, or may be the principal Cause of it after Bleeding, as we have already observ'd, because of the Blood's being put into a quicker motion during the Operation: But this ought not to deter the Practitioner, for if a Horse be kept cool after it, any Symptoms that can arise from it will soon cease, and will be quickly follow'd by a slower motion in the Blood; and this is manifest, because we often observe such Fevers, especially in Horses of a rare and delicate make, terminate in an Hemorrhagy of Blood.

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His Feeding must be moderate, during the whole Course of his Sickness; for, indeed, nothing contributes more to the lessening of this Distemper than Abstemiousness; and what Food is given him, should be mix'd with the Leaves of Vines, Strawberries, and Sorrel, and such other Things as are cooling; for if the Fever be very strong upon him, nothing will relish but what has a grateful Coldness in it. The same kind of things may be also boil'd in Water, with a little Oatmeal strow'd upon it, for his ordinary Drink; and sometimes two or three Drams of *Sal Prunellæ*, of purify'd *Nitre*, may be dissolv'd in his Water, which, during the Fever, ought to be always warm.

For the Heat and Dryness of the Mouth, so much Vinegar or Verjuice, mix'd with some Water, as will give it a grateful Sourishness and Roughness upon the Palate, sweetened with Honey, will be very proper. The best way to use it, is by dipping a Rag, ty'd round the end of a Stick, into this Liquor, with which the Tongue and Roof of the Mouth may be cool'd, and gently rubb'd several times in a Day. A feverish Horse will hereby be much refresh'd and dispos'd to Rest and Quiet; but if those Parts are become crusty and very hard, the Vinegar or Verjuice may be used without the mixture of Water.

If the Practitioner observes the sick Horse to be costive, which is very common in this kind of Fever, and proceeds from the same Cause that occasions Heat and Dryness of the Mouth; the Horse's Body must then be open'd by some emollient Clyster, for purging Drenches are in this Case of dangerous Consequence; because, while the Blood is thus violently in Motion, a *Stimulus* made in the Guts, by a Medicine of rough Operation, will be apt to determine the Blood into those Parts in an overgreat quantity, so as either to occasion a Super-purgation, or an Inflammation, which may be follow'd with a Gangrene.

But in all such Cases, before Clysters are administer'd, the Farrier should first (his Hand and Arm being anointed with Oil or Hog's-lard) take the Horse, and bring out as much of the harden'd Excrements as he can conveniently come at, after which he may inject his Clyster, for which every Farrier ought to provide a large Syringe, a Horn being but of little Use, as it seldom conveys the Clyster further than the straight Gut; and because the Guts of a Horse are not only very large, but of considerable length,

even from the undermost Valve downwards, the quantity ought at least to be two Quarts, for otherwise it must have but little Efficacy, unless it be made up of such things as are of very powerful Operation, which are but seldom to be meddled with, and then in some very uncommon Cases.

And therefore the Clysters that are to be made use of in simple Fevers, ought to be compos'd of emollient Herbs or Flowers, some few Seeds that are proper to rarefy and expel the Wind; by which means the Dung becomes loose, and falls off the more easily from its Adhesions. A moderate quantity of Oils, or any other greasy Substance, which contributes also to the same Purpose, by lubricating those Passages, and rendring them glib and slippery; and when a *Stimulus* is requir'd, a purging Medicine of more or less efficacy may be mix'd with it, as shall be judg'd necessary, according to the following Method.

“ Take Mallows and Marsh-mallows, of each a large
“ handful, Camomile half a handful, Fennel-seeds bruis'd,
“ three Drams, or half an Ounce, boil them in three Quarts
“ of Water till one Quart be consum'd, strain the De-
“ coction thro' a Sieve, and dissolve it in three Ounces of
“ Lenitive Electuary, and a quarter of a Pound of Hog's-
“ lard, Oil, or Butter.” This must be given blood-warm, holding the Tail close to his Fundament. If there be Signs of Inflammation in the Guts, which may be suspected when the Fever is very strong, the Excrements exceeding hard and black, and when the Horse strains often to dung, and is in miserable Pain withal; in such a Case may be added an Ounce and a half, or two Ounces of the *Sal Polychrestum*, which will dissolve in the Decoction; or an Ounce of *Cream of Tartar*, and two Drams of *Salt Petre*, or *Sal Prunellæ*; these will not only allay the heat, but make the Clyster somewhat more purgative.

This Clyster may be repeated once a Day, or, at least, until the Fever abates, or that the Horse becomes orderly in his Body.

It may be observ'd, as to the Composition of such Clysters, that any of the emollient Herbs, as *Pollitory*, *Mercuri*, &c. or the Flowers and Leaves of Melilot, the Leaves of Violets, and in the room of Fennel-seeds, those of Dill, Anise, and Caraways, may be substituted, and will suit the same Intentions. Broths may be also substituted in the room of such Compositions, especially when these Ingredients cannot be had in due time.

But

But if a Clyster of more immediate efficacy be requir'd, a handful of common Salt may be added; or instead of the Lenitive Electuary, three or four Ounces of the vomiting Wine, known by the Name of *Vinum Benedictum*, may be mix'd with the Decoction; but these Alterations will seldom be necessary, unless to Horses who are very hard to be work'd on; there being nothing farther requir'd by Clysters in a simple Fever, than keeping the Body moderately open, that Nature may have her free Course, and not suffer by Obstructions in the first Passages.

Care must also be taken to keep the Pores open by constant Dressing, tho' that ought not to be more than what is usual at other times; neither should his Cloathing be augmented, or any thing be given that will suddenly promote Sweat; because most, or all such things, are apt to cast off the thinner Parts of the *Serum* only; and a Fever that is truly simple, seldom ends by any of those Discharges, but wears off insensibly by a gradual Abatement; and it is to be observ'd, that a simple Fever, as such, is but of short continuance, and in a few Days either begins to wear off in the manner just mention'd, or else it puts on other Appearances; and if it gives Signs of Concoction, either by Urine, or by a tendency to Sweat, it is no more to be treated as a simple Fever, but as one that is more or less complicated; and then Medicines that promote Sweat are very proper, such as will be prescrib'd in the ensuing Chapter.

CHAP. VIII.

Of a Putrid Fever.

AS the Fever we have treated of in the foregoing Chapter is simple and uniform, that which comes here under our Consideration is of a complicated Kind, and, for the most part, proves fatal to Horses; for as in a simple Fever there is only a Rarefaction of the Humours; in this there are, besides the Augmentation of the Motion of the Blood, some evil Qualities ingender'd in it, which require a considerable time before they can be removed, and during the continuance thereof, Nature oftentimes sinks under her Burden; and the greater must be the Danger in brute Creatures, as they are not under the guidance of Reason.

The Cause of a Putrid Fever.

Putrid Fevers, and all Fevers of a complicated Kind, are more incident to young Horses than those who are advanc'd to their Prime; and to some more than others even in their Coltage, which, according to the best Authors, is, by reason the Blood of all young Animals is apt to be of unequal Fluidity, as not having been sufficiently commuted by frequent Circulations thro' the Lungs; therefore it will be the more ready, upon any Change, either to putrefy, or, at least, to put on the appearances of Putrefaction. And as the Appetites of young Horses are strong and vigorous, they are apt to over-gorge themselves, and oftentimes too with unwholesome Food, begetting Crudities in the Stomach, by which means the Chyle is contaminated, and the Blood, for the most part, render'd more gross and viscid. This alone is sufficient to bring on a putrid Fever; but more especially if a Horse happens to be put to violent Labour, or hard Riding, before his Body is prepar'd for it, either by moderate Feeding, moderate Exercise, or proper Physick; for when the Blood is once put into a more than ordinary Motion, while in this unactive State, any one must then easily conceive what great Disorder must needs happen to that Animal.

Cold taken abroad in the Night, or in unwholesome, foggy Weather, (when a Horse has been us'd to warm and delicate Keeping) will, by stopping the Passages of Perspiration, bring on such a Fever, especially where there is a gross Habit; for in such a Case the Blood cannot be so suddenly rarefy'd, as to constitute one of a more simple Kind; and the same may happen from several other Causes, which I shall not detain the Reader with at present.

The Signs. The Signs are those which it has in common with all other Fevers, to wit, inordinate Heat, a Clamminess and Parchedness in the Mouth, a heaving and beating of the Flanks; but this is not regular, as in a simple Fever, but is sometimes more, sometimes less, according as the Fever is more or less upon him; and whereas in a simple legitimate Fever, a Horse is watchful and restless, in this he is, for the most part, unactive and dull, hangs his Head, takes no notice of any one that comes near him, his Body shakes and quivers, and he reels as he offers to walk; and this proceeds from a Paucity or Oppression of the animal Spirits.

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In order to the Cure, the same Evacuations are to be made as is usual in a continued Fever, viz. Bleeding, and Purgings by Clysters; for as in a simple Fever the Blood may be render'd more thick by lessening the quantity thereof; so in a Putrid Fever also the Blood becomes more attenuated and thin, by having more room given it in the Vessels, whereby its Motion becomes also more uniform; so that somewhat must of consequence be abated from the Distemper; but yet as it is gross and viscid for the most part, it will be apt to require more frequent and repeated Circulations, than, perhaps, can be perform'd without wasting and destroying the Body, to bring it into such an equable Mixture, as is necessary to Health; and therefore, besides these Universals, such things ought also to be administer'd, as may conduce to the attenuating the Blood, and help to bring it to such a Texture and Make, as will render it fit to pass equally into all its proper Channels, and from thence to have its morbid Matter thrown off in such Proportions, and by such Secretions, as are most agreeable to Nature.

For which purpose all such things as promote the Discharges by Sweat and Urine are very proper; and therefore when a Horse labours under this Fever, purify'd *Nitre* or *Sal Prunellæ* should be dissolv'd in his Water, or that so much recommended by the *Sieur de Solleysell*, which he calls a *Febrifuge*, may be given him to drink, viz.

"Put a Quart of Water, with two Ounces of Salt of Tartar, in a brazen Pot, with a Cover, and set it over the Fire till the Salt be dissolv'd, then pour the Water into a Pail, and after the same manner dissolve an Ounce of *Sal Armoniack* beaten to Powder in another Quart of Water; mix this last Solution with the former, and fill up the Pail with common Water; and if your Horse refuse to drink it, add a little Barley-flower, to qualify the unpleasant Taste." This will not only help to allay the excessive Heat, but contribute to promote both Sweat and Urine.

But if there be Signs of Concoction, which may be discover'd by an Increase of the Fever, and by a Cloud or Sediment in his Urine, which may be preserv'd in a glaz'd Pan for that purpose; then the following Cordial may be given him.

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"Take

“ Take of the distill'd Waters of Carduus, Scabious, and Marigolds, three Pints; or instead of them, the same quantity of Milk-water, which may be had of an Apothecary, and will answer the End as well; dissolve in it an Ounce of Mithridate, and give it in a Horn, after which let him be well cloath'd; and when he begins to sweat plentifully, let him have a Draught of warm Water, with a small Mixture of White-wine in it.”

During the whole Course of the Fever, a Horse ought to be well rubb'd, that the Passages of Perspiration may be kept as free and open as possible; and that the Blood, which is apt to languish in the small Vessels towards the Skin, may be forwarded. Care ought also to be taken of his Mouth, to keep it clean and moist, according to the Method already laid down.

And because a Horse cannot vomit by convulsive Throws, as some other Animals, yet as Vomiting is proper, not only in this, but in most or all complicated Fevers, those Helps which the Practice of experienc'd Farriers have substituted, may be made use of; and therefore half an Ounce of *Assa Fetida*, and the same quantity of *Savin*, put up in a Rag, may be ty'd to his Bit, Pollipody of the Oak, green Juniper-wood, Horse-radish, or any thing else that is of a hot and ungrateful taste, fasten'd to his Bit, will have the same Effect. This may be done for the space of an Hour once a Day, especially in the beginning of the Fever, which will answer some of the Intentions of Vomiting. For by straining to cough, vomit, and sneeze, which happens on the use of such Things, the whole Body is actuated and shook, and thereby a great deal of Lensor may undoubtedly be squeez'd through the smallest Vessels, which cannot but be a great relief, and may often bring the Disease to a more speedy Solution. But altho' chewing Balls, &c. may be thus useful in a Fever, where there is a Lensor and Slowness of the Blood in the small Arteries, yet they cannot be proper in a simple and legitimate Fever, notwithstanding they have the Authority of *Solleysell* to support their Use; because such straining may have a tendency to stir the Blood too much, which is suppos'd to be in an over-great hurry already.

Lastly, If the Fever ends with a Defluxion of Rheum from the Mouth and Nose, as is not very uncommon in such Cases; “ Boil a handful of Red-rose Leaves in a Quart of Water; and when the Decoction begins to cool,

"cool, dissolve in it an Ounce of Diascordium, to be given as a Drench. This, being repeated for two or three Days successively, will digest that Humour, and dry it up by degrees.

CHAP. IX.

Of Pestilential Fevers.

UNDER this Title may be included all those kinds of Fevers that have a high degree of Malignity in them, and of such are many of the Sickneses peculiar to some Seasons. But when they amount to a Plague or Murrain, the whole Mass of Blood becomes so suddenly vitiated, that they generally prove mortal before any Helps can be given them, there being no time left for their due Operation of the common Means.

Those which are of the ordinary Kind differ only in degree from other malignant Fevers, having in common with them the same Lensor of Blood, and oftentimes proceed from the same Causes, as the eating of unwholesome Food, but especially such Herbs as are of a cold, viscid Nature, and are therefore apt to beget Crudities; or from the Excess of Exercise upon a full Body, and the like, which, in the Process of the Disease, brings on Symptoms that bear an affinity to those which are observable in the Plague. But when the Plague actually seizes Horses, the Effects are so sudden, that it can be attributed to no other Cause than some Distemperature in the Elements, or Infection from those who are already seiz'd with the Distemper; and whatever be the nature of those Infections, whether they proceed from corrosive Ferments, or from any other Cause, their Operations are so sudden, that they seem to bring the Blood into an immediate, and almost universal Stagnation, which Effects may be accounted for in the same manner as is usual in the Operation of Poisons; and, excepting in some few Circumstances, require the same Method of Cure.

As for the Signs, they are not unlike those of putrid and malignant Fevers, only that there is a great Stupidity, and, for the most part, a Swelling and Inflammation of the Kernels about the Throat, proceeding from a Stagnation of the Juices in those small Vessels; and when the Disease is very violent, a vast quantity of Water

runs from the Eyes, and a yellowish Matter distils from the Nose, and sometimes from the Mouth also, being sometimes rosy and mix'd with Blood; the Eyes are likewise inflam'd, and a clammy Sweat hangs on his Ears.

The Cure. As to the Cure, because this Distemper, for the most part proves mortal, and that of a sudden, proceeding from an over Distention of the small Blood-vessels of the Brain, causing Apoplectick Disorders; therefore the Neck-vein must immediately be open'd, and soon after a Clyster is to be administer'd, and such an one as will be of some Efficacy; for which purpose we recommend the following.

" Take of Marsh-mallows two handfuls, Rue one
" handful, one bitter Apple, boil them in five Pints of
" Water to two Quarts; mix with the Decoction two
" Ounces of the Powder, or Species call'd *Hiera Picra*,
" with four Ounces of Oil, or Hog's-lard.

This may be once or twice repeated; but if the morbi-
fick Matter happens to be cast out by Impostumation upon
any part that is safe, the Use of Clysters may then be laid
aside, unless the Oppression and the other bad Symptoms
continue, and that there are not to be seen in the Horse's
Piss the appearances of a Change and Solution of the Dis-
ease; in this Case milder Clysters, such as may be made
of Broth, or Water-gruel, with three or four Ounces of
common Treacle, may be of no small Service, as they will
be the means to lessen that Oppression.

But besides these Evacuations, there must be a constant
Use of Internal (for such are very much requir'd in all Pe-
stilential Diseases) and for this Intention the most powerful
Counter-poisons are esteem'd the most proper, such as
Venice-Treacle, *Mithridate*, *London-Treacle*, Pills or
Powders made of the Roots of Gentian, white Dittany,
Bistort, Tormentil, *Virginia Snake-Root*, *Zedoary*, *Con-
trayerva*, and the like; but those things not being always
in readiness, I shall therefore take another Opportunity to
give some Directions concerning their Preparation; and
therefore we shall in the mean while content ourselves with
such things as may be had at any time.

" Take the distill'd Waters of Carduus, Queen of the
" Meadows, Water Germander and Marigolds, of each a
" Quart; or instead of the distill'd Waters, take a large
" handful of each of these, infuse them in four Quarts of
" boiling Water. Give your Horse two Pints of this In-
" fusion

“ infusion every Day, with half an Ounce of *Venice-Treacle*,
 “ or *Mithridate*, dissolved in each Pint; if you add cam-
 “ phorated Spirits of Wine, it will be yet more efficacious,
 “ which may be done in the manner following.

“ Take Spirit of Wine rectify’d, or *French Brandy*, half
 “ a Pint, dissolve in it two Drams of Camphire, let two
 “ or three Spoonfuls of it be mix’d with each Dose of the
 “ Cordial-Infusion, and it will be a great means to over-
 “ come the malignity of the Distemper.”

The sick Horse must be kept in warm Clothing, and his
 Body often rubb’d; but if the Distemper proceeds from In-
 fection, the Sound ought to be remov’d from the Unsound,
 and the Stable perfum’d, by burning Pitch, Frankincense,
 Olibanum, Green-Juniper-Wood, and the like.

If the Distemper goes off like the Glanders, by a Dis-
 charge of stinking corrupt Matter from the Nose, as is not
 uncommon in such Cases, *Diascordium* dissolv’d in a De-
 coction, or Infusion of Red-rose Leaves, as in the preced-
 ing Chapter, may be given him for several Days; the like
 may be done in Cases of any Impostumation.

I shall put an end to this Chapter, by in-
 serting a Medicine of the *Sieur de Solleysell*, *A Medicine of*
 which he recommends in Pestilential Fe- *the Sieur de*
 vers, and with which that Author perform’d *Solleysell.*
 a considerable number of Cures in *Germany*, where there
 happen’d to be a great Mortality among the Horses in that
 Country. The Medicine was this.

“ Take Treacle not above three Months old, and Aloes,
 “ *Hepatica* in Powder, of each an Ounce, Confection of
 “ Hyacinth and Alkermes without Musk or Ambergrease,
 “ of each half an Ounce, dissolve them in a Decoction of
 “ Scabious, *Carduus Benedictus*, and Speedwel, of each
 “ a large handful. The said Author observes, that the di-
 stilled Waters of those Herbs were more effectual than the
 Decoction; but that might be accidental: For he must have
 had a vast many Instances before he could be sure of their
 different Efficacy. But we shall proceed to his Method, be-
 cause it is better than what we have hitherto met with in
 any Author, or known practis’d by any of our Farriers.

The next and the following Day after this Medicine was
 exhibited, he injected Clysters; and if the Violence of the
 Distemper was not abated, the Remedy was again repeated
 only with half the quantity of the Treacle, Aloes, and Con-
 fections; but the quantity of the Decoction was the same.

This

This he affirms to have cured all the Horses to which it was given. I shall here observe, that the chief efficacy this Medicine can have against the Plague, lies in the Decoction and Treacle, the Confections of Alkermes and Hyacinth being very costly; and yet the one will scarcely be found to excel our common Syrup of Clove-gilly-flowers; and as the other is chiefly proper in a Lax or Looseness, it may perhaps have check'd the Operation of the Aloes; and chang'd it into an Alterative, which may still be better done by a due mixture of Salt of Tartar.

CHAP. X.

Of a Heetick Fever.

TH^{O'} the abovemention'd Author has taken no notice of this sort of Fever, in his Treatise of Diseases, yet as most other Writers have given it a place in their Performances, and likewise since it is a Distemper that is not uncommon in our Islands, where Horses are not so well used as in *France*, we have therefore in like manner given it a place here.

A *Heetick Fever* is very often accompany'd with an internal Ulcer in the Lungs, or sometimes with an Infirmary in the Liver, and then it is often attended with the Yellows or Jaundice; but there being little or no hopes of recovery in either of these Cases, we shall consider it only as the Effect of some other Disease, where the solid Parts are wore and abraded, but not much broken.

The Causes of a Heetick Fever. The Cause is from Weakness, first brought on the Body of a Horse by some Mismanagement; as bad keeping, or other hard usage; or it is often the Effects of some previous Sickness, which has gone off by some imperfect *Crisis*, or by the Excess or Suppression of some usual Evacuation. But there is nothing contributes more to bring on *Heetick Disorders*, than an unskillful and injudicious use of Physick; for by this means many Horses, from a Presumption of carrying off foul Humours, have their vital Spirits so far wasted, as to be insufficient to answer the common and usual Functions of Life.

The Signs. And from hence the Signs of this Distemper are manifest: for tho' there are many of the common Symptoms of a legitimate Fever accompanying this,

this, as Heat, driness of the Mouth and Tongue, and few or no Intermiſſions of the Diſeaſe, excepting after Feeding, that the Fever is a little more rais'd, and the Spirits more active than at other times; yet the leaſt Exerciſe brings them again to their dejected State, and the Horſe is ſcarcely able to move, but looks tir'd and jaded, as if he had undergone ſome violent Exerciſe; his Fleſh becomes flabby, and while he ſtands in the Stable, he breaks out into frequent and repeated Sweats, which ſtill add to the Decays of Nature, and conſequently adminiſter to this ſharp and lingering Fever. If the Diſeaſe be accompany'd with an internal Ulcer of any kind whatſoever, it may be diſtinguiſhed by its Extremes; for wherever there is an internal Ulcer, it will be ſometimes choaked up by Inflammation; and until a freſh Diſcharge be made, or that the Blood, by a more free and eaſy Perſpiration has room to diſperſe itſelf into its proper Channells, the Horſe will diſcover Signs of violent Pain in ſome particular Part, with a more than ordinary Augmentation of the Fever. But of this more particularly in another Place; for here we ſuppoſe the inward Part, if at all, to be but ſlightly touch'd.

The Cure conſiſts in a due Adminiſtration of all thoſe things that are proper to recover Nature; and whatever does that, will by degrees remove the Diſtemper; and it muſt therefore be a very good Token of Recovery, when a Horſe improves and mends upon an Augmentation of his Feeding; whereas the contrary will always be of bad Prognofication.

But what is more particularly to be done in this Caſe, conſiſts, firſt of all, in the diſpenſing of ſuch things as are proper to abate the Heat and feveriſh Symptoms; for which purpoſe, recourſe may be had in thoſe Helps, which have already been given for the removal of a ſimple and legitimate Fever, only with this Caution, That Bleeding is not altogether ſafe, but when there is a Suſpicion of Pain and Inflammation in the Lungs, or other internal Parts, which is diſcoverable by an Oppreſſion, and unuſual heav- ing of the Flanks, &c. Neither are Clyſters profitable here, but will rather prove hurtful, unleſs when the Symptoms are increas'd by an over-great Coſtiveness; and in ſuch a Caſe, thoſe of the moſt eaſy and mild Operation are only to be exhibited.

Secondly, Becauſe Reſtoratives are proper in Heetick Diſeaſes, theſe ſhould be ſo contriv'd, as to come, as much
as

as possible, into the Diet of a Horse; and for that reason Mallows, Mercury, Agrimony, Melilot, Horehound, and the like, or such others of the same kind as are not of a nauseous taste and smell, may be mixed with his Hay, at least upon trial, because some Horses will eat those things. The Powder of *Diapente*, which is sufficiently in the acquaintance of all Farriers, may be very profitably given in this Case; not simply, as it is a Restorative, but as it contributes to strengthen the Stomach, and helps Digestion. And in fine, all pectoral Balls, such as shall be ordered in broken-winded, consumptive Cases, may also be exhibited with success. His Corn ought to be given him only by handfuls at a time, but pretty often: And if the diseased Horse has been used to eat Bread, Loaves made of Barley and Flour mix'd together, will make up one convenient part of Diet for him. As for his Drink, two or three good handfuls of *French Barley* should be boiled in it; for the Barley thus used makes a very good Restorative, and helps to abate the Acrimony that is so constant a Concomitant of those Diseases.

Thirdly, Moderate Exercise is also very necessary, and therefore he should be walked out gently every Day when the Weather permits, and that may be increas'd according as he recovers strength.

And lastly, his Clothing ought not to be heavy, nor his Dressing more than is usual at other times; because in all such Disorders there is already too great a Propensity to sweat.

CHAP. XI.

Of Intermittent Fevers.

AL L Fevers are said to intermit, that have any sensible Space between the *Paroxysms*, or the Fits free from the Disease; and therefore under this Title are included *Quotidians*, viz. those which return once, or oftner, every Day: *Tertians*, those that only return once every other Day; and *Quartans*, such as seize a Horse only every third Day: But these proceed from one and the same Cause, and admit of the same Method of Cure.

Now

Now all those things that can any ways weaken and destroy the natural Tone of the Stomach, may very readily bring on intermitting Fevers; and therefore they are oftentimes the Effect of some Fever, Surfeit, or Cold, taken in low marshy Grounds, which have never been clearly carried off, but by their long Continuance have left a Debility and Weakness behind them; the eating Herbs that are of a cold, viscid Nature, and which grow plentifully in some Seasons, may also give Origin to intermitting Distempers. But nothing contributes more to the bringing on of such Disorders, than an unskilful and frequent Use of Physick; for as the Stomach is usually the first Scene of Action for all such things, it is easy enough to conceive how the Tone of its Fibres may be relaxed or broke, so as to render it unfit to perform Digestion as it ought to do; and therefore as the Aliment is not sufficiently comminuted in the Stomach, a great deal of its gross and viscid Parts must be transmitted into the Mass of Blood, and thereby retard its Motion in the small Vessels of the Extremities.

The Cause of Intermittent Fevers.

The Signs are first a Coldness, with Trembling, accompanied with a Debility and Lassitude, which is succeeded by an extreme Heat and Drought, that suddenly terminates in a plentiful Sweat, and as soon as that is over, the Horse will feed, and appear as if he was quite recover'd, until another Fit overtakes him.

The Signs.

But in order to the Cure, it will be necessary to remember, that the Blood, in all intermitting Fevers, is render'd thick and viscid; and therefore to bring the Distemper to a Solution, it is necessary that those Viscidities should be broke, and this happens during the hot Fit, so that a great deal of that *Lentor* is thrown off in Sweat; but because the Stomach continues still in its weak and debilitated Condition, there is therefore a constant Supply of fresh Viscidity communicated to the Blood, for which reason the Disease returns. But if there be no Alteration in the Habit of the Body, the Disease will be apt to return at certain Times, and the Intervals between the *Paroxysms*, or Fits, will be equal; because while we suppose near the same quantity of the common and usual Food to be eat, and that there is the same Capacity of Digestion left in the Stomach; moreover, that all the common Discharges are the same, or near the same, in any given Space, viz. in

in 48 or 72 Hours (which constitutes the Intervals in Tertians and Quartans) therefore the Blood will probably in that time acquire a degree of Viscidity equal to what it had before the beginning of that Space, that is, immediately before the Solution of the preceeding Fit, and therefore another Fit will be apt to return at the same distance of Time. But if any Alteration happens, whereby the Stomach may be render'd yet more weak; or if a Food of harder Digestion than what is usual happens to be eat in that time; or if the common Discharges happen to be more than ordinary obstructed; or if a more than ordinary quantity of the thinner Parts of the Blood be exhausted; then the Fits will, probably, return oftner, by reason the same degree of Viscidity will be sooner ingender'd in the Blood. But if between the Intervals, the Stomach gathers more strength, and the Blood becomes more attenuated and thin, whether those Changes happen by the use of proper Exercise, Diet, or Physick, then the Fit will not return at its usual time, but, if at all, its return will be later, for the Reasons already alledg'd; and if the same œconomy of Diet and Physick be continu'd, the Blood must yet become more attenuated, and the Stomach will acquire its wonted Tone; so that of consequence there will be no farther return of the Disease.

From all which it is evident, that the Cure of intermittent Fevers, consists not in those things that are necessary barely to remove the Fit, for that happens naturally by a determin'd Increase of the quantity of viscid Blood, distending the small Vessels, and an habitual Aptitude in the sudorifick Pores, to cast off the *Lentor* by Sweat; but that Aptitude constitutes part of the Disease, and is rather to be cured than encourag'd; and therefore such Medicaments are to be used as will be of efficacy, not only to break those Viscidities, which obstruct the Capillaries and small Vessels, but also to draw up the Solids into such a tenuity, and recover their Vigour to such a degree, as is necessary to prevent the Increase of such Matter for the time to come; for it is by this last Intention, that Digestion, and a due Commination of the Juices, is to be perform'd.

The Cure. Therefore, if a Horse labouring under this Distemper be young, and has not been too much wore out by the continuance of his Sickness, a moderate quantity of Blood may be taken from the Neck-vein; but this must be done with Discretion; for if the Horse

Horse be old, and much wore with the Distemper, it will do him more hurt than good.

Immediately after the Fit is over, give your Horse an Ounce of the following Powder in red Wine and Water, and let the Dose be repeated three or four times a Day, that, if possible, the return of the Fit may be prevented.

"Take Gentian Root two Ounces, Camomile Flowers, Galangal, Zedoary, of each one Ounce, Myrrh and Gum Guaiacum, of each an Ounce and a half (or if he be a Horse of small value, two Ounces of the Bark of Sassafras, or an Ounce of Oil-bark, may be substituted in the room of the Gum) make these into a fine Powder."

But if there be a tendency to a Lax or Looseness, in such a Case every Dose of the Powder may be made up into a dry Paste with Diascordium, given him either whole or dissolv'd, in any convenient Liquor; for a Looseness is above all things to be prevented, because in all aguish Distempers it contributes to the Diminution of a Horse's Strength.

I knew a Horse once cur'd of an intermittting Distemper by repeated Doses of *Diapente* given in Ale, and an eminent Farrier told me he had cur'd two or three Horses of Agues, only with Juice of Rue given them in a Morning fasting; but the efficacy of this Herb seems to be more adapted to Diseases of greater Malignity; as for the *Diapente*, it is compos'd of the Powders of the Roots Gentian, Birthwort, Myrrh, Bay-berries, Shavings of Harts-horn, or Ivory, of each an equal Quantity. These Ingredients (the Harts-horn only excepted) are the same with those of the *Electuarium Diateseron* of the London Dispensatory, which claims a very ancient Father in Physick for its Author, and are not improper in the intermittting Diseases of Horses, especially when there are things of more efficacy joined with them.

But since the Virtues of the Jesuits-bark are sufficiently known, and its Effects manifest in the Cure of those Distempers in human Bodies, it may, no doubt, be given with good success to Horses, as the Oeconomy of both is in many respects the same; and I am the more ready to introduce this Medicine into the Farriers Practice, because I knew it given with success to a fine young Horse, that was so much addicted to sweating, that he became very weak, and his Flesh grew exceeding flabby; and indeed

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it cannot but do singular Service in all Cases where the Stomach is weak, and the solid Parts relaxed; and I am of Opinion, had the Virtues of this celebrated Drug been known in the *Sieur de Solleysell's* time, he had, without doubt, given it a Place in many of his Cures, and would have found its Use preferable to that of the Liver of Antimony, in most of the same Intentions where that was found successful.

Now as the most simple Preparations of the Bark, for the most part, prove more efficacious than those that have more time and labour bestow'd on them, it may be the better comply'd with; and therefore if the sick Horse be of any Value or Service, and has got such a Fever as we are now treating of, take a quarter of a Pound of this Drug made into a fine Powder, and divide it into six Papers, for so many Doses. Give one, as soon as the Fit is quite gone off, in any common Liquid that is not purgative; and let two more be repeated in the space of twelve Hours, and a fourth two Hours before the return of the next Fit. And if the Fit returns but once in two Days, then the Bark may be repeated in the same manner the Day following; but if there is no return of the Fit at its usual time, three or four Doses more will go nigh to make a Cure. If a Looseness happens, it may be given in *Diascordium*, as the Powder above describ'd, until such time as that Symptom goes off, because during the Looseness, the Medicine loses much of its Efficacy, as also if it be given in time of the Fit.

And because every thing is proper in this Case, that may any wise contribute to forward the Circulation of the Blood in the Capillaries and small Vessels, therefore a chewing Ball ought to be ty'd to his Bit, for an Hour, or half an Hour, every Morning, excepting when the Fit is upon him; and he will, doubtless, recover much the sooner, if he be rid out gently for two Hours every Day, there being nothing that contributes more to invigorate the Stomach, and strengthen all the solid Parts, than a moderate and continued Use of Exercise.

His Oats should be clean and nourishing; and though he should have but little Feeding at a time, yet that should be often; and if he has been accusom'd to Bread, the finest will agree with him, but nothing that is harsh and scouring.

Good rubbing will be of Service to him, especially when the Distemper begins to wear off, because that also keeps a Horse in a sort of moderate Exercise; but if he be empty,

or was but newly reliev'd of his Fit, in that Case he ought not to be over-much fatigu'd.

C H A P. XII.

Of SURFEITS.

BECAUSE this is a Term frequently us'd among Farriers, and all sorts of People, to signify a Disease, we have thought convenient to conclude this Discourse of Fevers with a short Account of those Disorders that go under that Denomination.

By a Surfeit is principally understood all such Maladies as proceed from excessive and immoderate Feeding, but especially upon unwholesome Provinder, from Cold, or hard Riding, &c. whereby the Horse comes to forsake his Food, grows lean, and sometimes will be infested with hard Swellings, which, if they happen to fall upon the Joints, will, in Process of time, occasion Lameness, and many other Disorders.

What is generally meant by Surfeits.

Now whatever be the original Cause of Surfeits, whether they proceed from Cold, excess of Feeding, or Labour, or from any Disposition of the Air and Climate; it is very certain, that what goes under the Notion of Surfeits, is no other than that which follows the imperfect Solution of any Disease; but those which proceed only from a Glut of Provinder, and the like, being the most simple, are easy to be cur'd, as their Cause is the most simple; whereas those on the other hand, proceeding from more complicated Causes, are often the Effects of Chronick Distempers, and therefore must be hard and difficult, and oftentimes prove incurable.

But this will be better understood, if we examine somewhat more narrowly into that kind of Surfeits which proceeds from Feeding; for by the Knowledge thereof, all that is necessary concerning Surfeits will be the more intelligible, as it is that alone which, truly and properly speaking, constitutes a Surfeit.

We are then to suppose, that while the Stomach is constantly receiving Food, and as constantly transmitting fresh Supplies of Chyle to the Mass of Blood, that all the Blood-vessels must become distended and full, insomuch that the superfluous Moisture

A Surfeit described.

cannot be carried off through the Pores of the Extremities in such quantity as is necessary, by reason that these Pores are not of sufficient Capacity and Magnitude, that is to say, they are not wide enough to give vent to so much Matter; and therefore the Distention of the Vessels will still be more increased; and as the grosser Excrements must also be augmented from the constant Supplies of Food, the Guts must thereby receive more than can be discharg'd in the usual and natural way; but this will be easily apprehended by any one who considers the slow Progress of the Dung in the intestinal Tube, which is of a very great length from the Stomach to the Fundament, and is wound up into many Circumvolutions and Turnings, as is visible when the Belly of any Creature is laid open; and therefore when the first Passages, and likewise all the Blood-vessels are thus cramm'd, a Fever must be created; but because the Oppression is so very great, that Nature cannot support it long before she discharges herself of the Burden; therefore wherever the *Nisus*, or *Impetus*, is most, there she breaks forth sometimes like a Flood; and if that happen to be in Sweat, the sudorifick Pores are open, and stretch'd to such a degree, that the Distemper will be quite solv'd, and all the other Passages made glib and easy, so that the Excretions of another kind begin all to loosen and fall off through their proper Ducts; but if the Solution happen not to be universal, though the Fever be in a manner abated and quite gone, yet because the internal Glands, but particularly those of the Guts, for this is most to our present purpose, are not at all, or at least sufficiently open'd, therefore the harden'd Excrements are no ways loosen'd from their Adhesions, but continue fastned by a sort of glutinous and viscid Matter to the sides of that Canal. But while the Dung is in this manner pent up, it ingenders a more than ordinary degree of Putrefaction, and its acrimony and sharpness becomes a Stimulus to the Guts, and by its Vellication occasions a more than ordinary quantity of Liquor to be drain'd from the intestinal Glands, so that the Excrements are at length cast forth by a Looseness, and are discharg'd in a very great quantity; and now Nature being more at liberty by a plentiful Discharge of the Dung, the Blood is thereby put into a brisker Motion, by which it dilates itself, and flows with more ease, and in greater quantity, into the small Vessels towards the Extremities of the Skin, so that if its Texture be thin and moveable, it will either cause an Hemorrhage at the Mouth or Nose,

by

by a Distraction of the small Fibres, or will otherwise break out into little Pustules among the Hair, which will also be accompany'd with Sweat, and then the Disease will probably come to a speedy Issue; but if the Blood has acquir'd a more than ordinary Viscidity, during the Lentor and Continuance of the Dung in the Guts, which is most likely, and what usually happens in such Cases; it will then be apt to stagnate in some places more than others, and cast off the remainder of the Disease in Biles and Swellings, such as we often observe after Surfeits.

We may therefore determine all such Tumours, or other Excrescences, as are the Effects of an over-plenitude and fulness, to be, properly speaking, what belongs to a Surfeit; and when the like Symptoms proceed from the imperfect Discharges of any Cold, whereby the Passages of Perspiration have been suddenly obstructed, they then bear a near affinity to the former, as a Lentor of the Bowels is oftentimes previous, or, at least, a Concomitant of such a Cold. And if such Swellings be the result of a Putrid or Malignant Fever, that has not been of long continuance before the Disease was brought to a Solution, tho' these may undoubtedly be worse than the other, yet they only differ in degree, and require the same Method of Cure. And with these may be class'd all such as happen after any kind of violent Exercise that has not been of long continuance, and which proceed from some slight Disorder arising from thence. But if the same outward Symptom, or rather Symptoms, having the same outward Appearances, proceed from long continued and hard Labour, by which the Machine is, as it were, broke and quite disorder'd; or if they be the Effects of hectick or intermittent Fevers, or any other internal Malady, that has been of such Duration as to waste and decay the Body, and pervert the natural Juices, they are in this Case not to be deem'd Surfeits, or the immediate Effect of Surfeits, but to be look'd upon as what will constitute Ulcers of the worse kind. But as we have allotted a particular Place for the Cure of all sorts of Tumours and Ulcers, which the Reader may consult at his leisure, we shall therefore in this Place take notice of Surfeits, and the Accidents that are more especially peculiar to them.

When the Farrier observes a Horse to be surfeited, and under a heavy Oppression from the want of the common and usual Discharges, he ought,

In what manner Surfeits are to be distinguished.

The Cure.

in the first place, to take Blood from the Neck Vein; and after raking him with his Hand, give him an emollient Clyster, with a larger than ordinary quantity of Oil or Hog's-Lard in it, the better to lubricate the Passages; after which, if he has no Fever, or, at least, but a slight one, he may give him the following purging Drench.

"Take of Sena one Ounce, Sweet-Fennel Seeds, Coriander, or Caraway-Seeds, of either half an Ounce, Salt of Tartar one Dram, infuse them in a Quart of boiling Water, pass the Infusion through a Sieve, or pour it off by Inclination, and when it is cold, add to it an Ounce of the Powder of Jalap." This must be given in the Morning, and the Horse kept fasting for the Space of four Hours before and after it; and as soon as his Drench begins to work, he must be walk'd gently, till the most of its Operation is over: His Water should be warm, and strew'd with Oatmeal or Barley-Flower, and nothing should be given

A Caution against cold Water when a Horse has taken a purging Drench.

him that is cold. And here I cannot but take Notice of a ridiculous Custom that has of late been practis'd both among Farriers and Grooms; and that is, giving a Horse his Belly full of cold Water, to promote the Operation of purging Physick; the Effect of this must be by creating Colick Disorders in the Guts, as I have often observ'd, and afterwards it never fails to operate to Excess; but if Horses of Strength and Vigour can scarcely overcome such Shocks, it must go very hard with those that are Weak and Infirm, all which is demonstrable; but I should think common Reason sufficient to dissuade People from such palpable Folly; therefore we shall say nothing further about it, but return where we left off.

The Day after the Physick, chewing Balls are to be us'd for an Hour in the Morning, and then he ought to be rid out for Air and Exercise, and at his return he may be permitted to eat a few boil'd Oats with Bran, his Water should be warm all that Day, because the Effects of the Physick may not be quite wore off; and the Day following his Physick may be repeated, with an Addition of two Drams of *Diagridium*, provided he be a Horse of Strength. But if after all this he breaks out into Biles, and inflam'd Swellings, which, as has been observ'd, happen, for the most part, after an imperfect Solution, then the Use of purging must be laid aside, unless he turn very costive, and in that Case mild Clysters may be injected; and because

Nature

Nature must always be assisted in her own way, therefore let him have Plenty of warm Water, strew'd with Oatmeal, and acidulated with *Sal Prunellæ*, purify'd Nitre, or the like to promote Urine, and to dilute and ripen the Humours; and if he be a Horse of Value, he may have a Pint of Milk-water, with half a Pint of Treacle-water, given him, and repeated the Day following; but this is more especially to be comply'd with, if the Tumours be the Result of a putrid and malignant Fever; for in this, and all other such Cases, if any Evacuation be made otherwise than by such Things as are proper to excite a gentle Breathing through the Pores, and promote the Secretions by Urine, &c. Nature will be very apt to alter her Course into that which is not so agreeable to her; so that not being able to make a full Discharge, the Relicks of the Disease will be still left behind; and those Things that are made use of with an Eye to assist her, will, probably, instead of that, weaken her yet more; and it is from such contradictory Methods that so many Horses lose their Appetite, or if they be able to eat plentifully, they notwithstanding look lean and jaded, and are unable to do proportionable Service; and it is from such Mismanagement that the Mange, Farcin, Lameness, Blindness, and the whole Train of chronical Diseases, very often take their Origin.

C H A P. XIII.

Of the Diseases of the Head.

WE find in Books several Diseases rank'd under this Title, that are seldom met with in the Farrier's Practice, at least, not distinguish'd, unless it happens that some honest well meaning Person may take it upon trust, from those Signs which have been attributed to them by his favourite Author. But yet it is very certain, that a Horse is often subject to Diseases, which in a more especial manner affect that Part; and if his Food were not more simple and agreeable to Nature, he would undoubtedly be more subject to such Diseases than Man, because of the prone Position of his Head, which must occasion a greater Influx of Blood into the Brain, and also forward it upon the Eyes, Mouth, and Nose.

General Observations concerning Diseases of the Head.

Markham has in his Catalogue enumerated all those Diseases that are peculiar to Man, but in Horses they are very hard to be distinguish'd, because of the similitude of the common Symptoms; neither has the *Sieur De Solley-sell* mended the matter very much, having confusedly scatter'd them here and there in his Writings, excepting only that he has classed some together which were the Concomitants of a great Sickness that happen'd in *France* and *Germany* in his time; but these were improperly term'd Diseases of the Head, being only the Attendants of that Sickness. We shall therefore go on a little more methodically in explaining those Disorders, as they seem most agreeable to the State and Condition of that Animal; and that we may avoid all useless Divisions, we shall take them in the Method which seems to be the most natural.

CH A P. XIV.

Of the Head-ach.

THIS has had a particular Place among the Diseases of the Head, both by the *Physicians* and *Farriers*, in all Ages; the last have made no distinction, but the *Physicians* have distinguished between a Head-ach, which they term *Idiopathick*, as it proceeds from a Cause without the Blood-vessels, and that which they call *Sympathetick*, being the Concomitant of some other Disease: But our Business here is only with the first kind, since the other is but a Symptom, which must of course wear off with the Disease to which it belongs.

As to the Cause, it is believed to proceed from a Distraction of the Fibres of some Blood-vessels in the Brain, or Membranes thereof, occasion'd by some of the smallest Particles of the *Serum* being struck into the Pores or Interstices of the said Vessels, by the frequent Occursions of the Blood.

The Signs are, according to *Markham*, the hanging down of the Horse's Head and Ears, dropping of his Urine, dimness of Sight, swollen, waterish Eyes: But these are common to divers other Diseases; and I am truly of opinion, such a Head-ach cannot be easily distinguish'd in brute Creatures, that want the Faculty of Speech, and therefore cannot declare their Infirmities: But however, if a Horse

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has such Symptoms without a Fever, and if it be observ'd that he often puts his Head against the Stall, or Manger, it will be very proper to have recourse to some Remedy; for which purpose we recommend Bleeding, Purging, and Rowling, as also the use of chewing Balls, &c.

C H A P. XV.

Of the Stavers, or Staggers.

IN order to the knowledge of this Disorder, it will be necessary first of all to inquire into the Nature of an *Apoplexy* and *Vertigo*, for without some insight into these, the other can never be rightly understood.

First then, as to an *Apoplexy*, that is usually defin'd a Privation of Sense and Motion, excepting only a weak and languid one in the Heart and Breast; and this proceeds either from a Cause without the Vessels, viz. when the Blood or any other Fluid happens to break out of some Vessel within the Brain, or when there happens to be preternatural Bones or Tumours, bred and contain'd within the Skull, or any other extraneous Matter that may in any sort press upon the soft Substance of the Brain, causing those deadly Disorders. But this is a Species that is incurable, and for the most part seizes suddenly, without any foregoing Tokens and Warnings: But the other proceeds from some Cause within the Vessels, whereby the Arteries, which are woven into the *Pia Mater*, or innermost Membrane of the Brain, or that part of it which involves the Trunk of all the Nerves, becomes over-much extended; so that by the Pressure of these Vessels upon them, Sensation is intercepted, and Motion lost.

Thus, in an *Apoplexy*, Sense and Motion are in a manner quite lost, because of the Pressure that is made upon the Origin of all the Nerves that arise from the Head: But in a *Vertigo*, Objects that are at rest, appear as if they were turning round, and by that means occasion any Creature to reel and stagger: And this proceeds from the vibrations and tremors of the Optick Nerve, whereby the Images falling not directly, but successively upon the different Parts of the *Retina*, an Object that is at rest, will therefore appear as if it was turning round;

and this may be occasion'd, either when an Animal is fearful of falling, or from a Repletion and Overfulness of those Arteries which are situated near the Optick Nerve, which, by pressing upon the Brain, will cause a shaking in that Nerve. But our Business is only with the last.

The Staggers reducible to the one, or the other, prov'd by Instances taken from the various Appearances of that Disease.

Now if we examine a little carefully into all the different Appearances of that Distemper, which Farriers call the *Stavers* or *Staggers*, we shall find them reducible to one of these Maladies above described.

For, first of all, if we consider that sort which is the most simple, *viz.* when a Horse suddenly falls down upon the Road in a very hot Day, or when he falls upon hard Riding, we shall find nothing in the Cause of this Disorder, but what is in one of the former; and the Reason of this is easy enough to be conceived, and will happen to a Horse whether he be in a good or bad Case; for when the Blood is put into a more than ordinary Motion by any hard Exercise, it will easily flow into the Brain of a Horse in a greater quantity, than can be readily return'd by the Veins; and therefore the Origin of the Nerves will be press'd upon by the distending Vessels, so as intercept the Animal Juices; or otherwise these may be sent forth in such disorderly manner, as to occasion a Horse's falling down; but in this Kind, when a Horse has lain some little Space, and that the Impulse of the Blood ceases, it then flows more regularly thro' the Veins, by which the Arteries become less distended, and the Horse recovers his Senses, and rises up as from Sleep. Thus the Head is affected the same manner as in an *Apoplexy*; but as there is little or no Fault supposed to be in the Blood, the Horse soon recovers, and oftentimes without the Assistance of any Application.

There is another kind of Staggers which resembles the former, and also affects the Head in the same manner as an *Apoplectick* Disorder, and that is when a Horse falls down while at Grass: And this sort I have observ'd happen the first or second Day after they were turn'd out; for while they feed with a more than ordinary Intenseness, with their Head constantly down towards the Ground, the Blood must flow in a more than ordinary quantity to the Brain; and while the Head is in this dependent Situation, the Blood in its Return must ascend upwards: So that if a Horse's

Horse's Head be kept long in that Posture, but especially if the Blood be viscid, and unapt to Motion, it will undoubtedly obstruct the small Arteries, and cause a Horse to fall by the Pressure of those Arteries upon the Nerves.

But that kind of Stagger whereby a Horse falls down in the Stable, or when he is newly brought out into the Light, or when his Exercise is but moderate, it is either a true Apoplexy, or a Vertigo, or perhaps both; but when a Horse reels and runs round, being some time under the Disorder before he falls, that is plainly a Vertigo: And if after a Horse has thus fallen down, he immediately rises up again, but looks stupid and blind, reels and falls again, knocking his Head against the Boards or Walls, these are also for the most part Signs of a Vertigo; for what sometimes happens of that kind in a Frenzy, comes not properly under this Denomination (tho' most of our Authors confound them together) unless it be that sort of Frenzy, which may proceed from extraneous Matter lodg'd on the Brain, or its Membranes. But all these Symptoms we have now mention'd, may, and, for the most part, do arise from a Vertigo; for here Sensation is not quite obstructed, but, as we suppose, a Vibration and shaking of the Optick Nerve, the Stable and every thing about him, must seem to run round; and if he rise in this Condition, he must certainly fall, and that instantly.

Having thus given a short Account of the different kinds of Staggers, and the Causes thereof, we shall in the next place proceed to the Cure. And first of all, whether they arise from an Apoplexy, or Vertigo, or only from an over Repletion of the Blood-Vessels of the Head by hard Riding, &c. the Method to be observed, as to the first Intentions, will be much the same; because even in the most simple Kind we suppose the Blood to be somewhat faulty, therefore Blood must be taken pretty plentifully both from the Neck-vein, and likewise from the Spavin or Flank-vein, or from any other towards the hinder Parts; but first from the Neck, because by opening that Vein, as it drains the Blood immediately from the Head, that portion of the Blood, which is in the small Arteries in the Brain, as these are empty'd into the small Branches of the Vein that is opened, must undoubtedly give sudden Relief, and by that Means take off from the Pressure

The Cure of the Staggers.

The Method of bleeding Horses for Diseases in the Head.

Pressure upon the Nerves : But because the Head of a Horse is not in an erect posture, as that of a Man, but many Horses have the position of their Heads only a little higher than their Shoulders ; but especially as in all such Disorders, a Horse is apt to slouch and hang his Head, a Revulsion is also to be made by opening a Vein behind, and this ought particularly to be observ'd in all Diseases of the Head ; for altho' Blood taken from the Neck-vein, is very proper to give immediate Relief, yet a greater quantity must thereupon flow into the Brain, since it is sufficiently known, that all inclosed Liquids will run towards a Vent ; but when a Vent is made soon afterwards behind, then a greater quantity of Blood will flow into the descending *Aorta*, and from thence backwards ; so that a lesser quantity will flow forwards towards the Head.

For which Reason, unless the Horse be weak, take immediately a Pint of Blood from the Neck ; and when that Operation is over, open one of the Veins behind, and from thence let him Blood a full Quart. This alone will cure any stagger'd Horse, if so be his Disease is simple, and only of the first kind, and that he is afterwards kept to a moderate cleansing Diet, and is for some time thereafter harden'd with proper Exercise.

But if the Staggers are the result of a true and genuine Apoplexy, he must be exercised every Day with chewing Balls made of *Assa Fœtida*, Savin, and the most noisome things that can be got ; for those Smells will put him upon constant Action, and help to forward the Motion of the Blood, in the small Vessels where it is obstructed.

After this, recourse must be had to Clysters, to strong Purgatives ; for which purpose we recommend the following Clysters out of *Solleysell*.

" Boil two Ounces of the *Scorie* of Liver of Antimony, made into a fine Powder, or five Pints of Beer ; after five or six Warms remove it from the Fire, adding a quarter of a Pound of the *Unguentum Rosatum*, inject it lukewarm. Instead of the *Unguentum Rosatum*, may be used Butter, or Hogs-lard." Or the following Clyster may also be used.

" Take two bitter Apples, boil them in five Pints of Water ; pour off the Liquor, and mix with it three Ounces of the Juice of the Buckthorn-berries, or four Ounces of the Syrup, the same quantity of Oil or Butter as in the former." These may be repeated two or three

three times; after which the following purging Drench may be given.

"Boil one bitter Apple in a Quart of Beer, and after it has been strained out, and is become almost cold, add to it an Ounce and a half of Powder of Jalap, and two Drams of Diagridium." These may be repeated two or three times, if the Horse has strength to bear it.

He ought also to be exercis'd and rubb'd very well; and while he is under such Courses of Physick, his Water should be warm, and sprinkled with Oatmeal.

But that kind of Staggers which is occasion'd from a Vertigo, requires a milder Method; and therefore a Clyster made of an Ounce of *Sena* boil'd in five Pints of Water, with four Ounces of common Treacle, with the usual quantity of Oil, or Lard, may be injected: And this may be also repeated for two or three Days; after which he may have a Drench of Beer given him, wherein Roots of Piony, Angelica, Rue, Rosemary, Flowers of Lavender, and the like, have been steep'd, according to the following Prescription.

The Cure of a Vertigo.

"Take of the Roots of Male-piony one Pound, Roots of Angelica half a Pound, Gallangal bruised four Ounces, Flowers of Lavender, Tops of Rosemary and Rue, of each two Handfuls; let them be infused in eight Gallons of new Wort, and when it has sufficiently work'd, give your Horse two Quarts every Day, keeping him bridled an Hour before and after."

But if this Disorder happens to continue obstinate, and there are frequent threatnings of a Relapse, such things must be used as will effectually eradicate the Cause; for which purpose we recommend the following Balls, viz.

"Take of Cinnabar, and the clearest *Assa Fœtida*, of each half a Pound, Bay-berries four Ounces, Castor two Ounces:" But if the Horse be of small value, and not worth the expence of the Castor, it may be left out, though the Medicine will not perhaps be of such immediate efficacy. "These must be pounded in a Mortar until they are reduced into Powder; after which they are to be made up into a Mass, or stiff Paste, adding by degrees as much Oil of Amber, as is sufficient for that purpose; make them into Balls weighing an Ounce and a half each, whereof one is to be given every
"Morn-

"Morning in a Quart of the medicated Ale, standing
"bridled as above directed." The Cinnabar, as all other
Minerals, but especially as it abounds with Quick-silver,
is therefore a most efficacious Remedy for opening Ob-
structions in the smallest Vessels: But the Reader may turn
to that Part where we have treated of the Farcin, where
its Virtues are taken Notice of at more length.

But here it is to be remarked, that the last prescribed
Remedies are not only proper in that kind of Staggers,
where the Horse reels and turns round, but also in the
other kind, when he falls on a sudden: For as in an Apo-
plexy, Sense and Motion are taken away by a Pressure on
all the Nerves, so in a Vertigo the Pressure is either in part,
or else the nervous Juice is render'd more viscid and unapt
to Motion than it ought to be, so as to occasion those Tre-
mors, which are the more observable in the Optick Nerve,
as they affect the Sight; and therefore the chief Difference
in the Cure lies only in this, That in Apoplectick Cases
things of the greatest Efficacy must be used, even in the
common way of Evacuation, because Sense is so much de-
stroy'd in all Parts of the Body, that things of a milder
Nature will do but little Service; whereas in Vertigo's,
Sensation not being altogether obstructed, at least in the
beginning, but render'd disorderly, the Purgations need
only be such as will make moderate Evacuation, and these
not long continued.

*The common
way of curing
the Staggers.*

Most of our Farriers cure the Staggers by
making Applications of things, that are of
a hot and pungent Nature, to the Ears; as
Garlick, Rue, *Aqua-Vitæ*, Cloves, Ginger,
Bay-salt, and the like, which being stich'd up within the
Ear, may, no doubt, be sometimes efficacious in those
Cases that are simple (and which are indeed the most
common) as they stimulate the tender and sensible Mem-
brane, which covers those Parts, and thereby rouse the
Blood to a quicker and brisker Motion; but these ought
to be us'd with Caution and Circumspection; for I have
seen Horses run stark mad when those Applications have
been too strong; and it was with much ado they could be
kept from knocking out their Brains against the Walls;
and sometimes that violent Agitation, instead of giving re-
lief, makes the Fits return the oftner upon them, by driving
too much Blood into the Arteries of the Brain.

C H A P. XVI.

Of a Palsy.

THE antient Farriers, and many of the Country People to this Day, when they see a Horse or a Bullock have his Limbs suddenly taken from him, and not being able to think what should be the Cause of such an unexpected Change, believe him to be either Planet-Struck or Shrow-run; but most or all those Accidents are owing to the Palsy, and therefore we shall include them under that Denomination.

A Palsy is an Inability to Motion, arising *A Palsy defin'd.* either from a Fault in the Blood or Animal Spirits, or from both together; and it seizes sometimes the whole Body, sometimes one Side, and sometimes a particular Part only.

When the Cause happens from the Animal Spirits, then Sensation is in a manner lost; and sometimes with an Inability to Motion also; and because the nervous Fluid is render'd thick, and unapt to Motion, and the Nerves themselves relax'd and moist, and consequently unfit for lively Vibrations. There will also be sometimes a Numbness and Insensibility to the Touch, but yet a Capacity of Motion may be preserv'd. But when a Palsy arises from a Fault in the Blood, *viz.* from an over-great Humidity, or when it is render'd too thick: In the first Case the Muscles are stretch'd out in length, and their Fibres relax'd, and by loosing their Tone, they become incapable of Contraction; and therefore tho' there may be a Distribution of the nervous Juice, yet Motion is lost by reason of that over-Relaxation, while at the same time Sense may remain; and in the other Case, though there be a Concourse of Spirits, yet the Blood is so thick, that it cannot be suddenly enough rarefy'd to produce Motion. But, lastly, when the Blood and Spirits are both affected in a Palsy, the Sense and Motion will both be lost: And if the Nerves or Blood be affected within the Brain, then the Palsy will be accompany'd with an Apoplexy or Vertigo.

And therefore the Causes of a Palsy are all *The Causes of* those things that may induce an over-great *a Palsy.* Humidity into the Blood and Spirits, so as

to occasion a Relaxation or Looseness in the Canals, or Fibres; or when the Blood alone is render'd so thick, that it cannot be suddenly rarefy'd, by which means the Nerves and animal Juices become also affected; and this is usually brought about either by a moist Temperament, Climate, or Season, or the eating of cold viscid Herbs, but especially when a Horse goes in a wet, marshy Pasture, and lies frequently on the cold wet Ground. The same Effects are also produced from things of an opposite Nature, as the internal use of hot things; but our Business is only with that sort of Palsy which proceeds from Humidity, &c. the other seldom or never happening to Horses.

Its Cure.

In order to the Cure, the Horse should be exercis'd with chewing Balls made of Savin, Rosemary, and Lavender-flowers, made into Powder, and beat up with *Assa Fœtida*, and a sufficient quantity of Oil of Amber; after which to be ty'd in a Rag, and fasten'd to the Bit, as usual: And at proper Intervals, Clysters should be injected, such as have been ordered in an *Apoplexy*. But, as we suppose the Cause from an over-great Humidity and Relaxation of the Vessels, Bleeding is not necessary, but may rather prove hurtful, unless there should also be the Signs of an *Apoplexy*, and in that Case it will be very needful.

All hot things, as Mustard, Ginger, Pepper, and other Spices, but especially Mustard infus'd in Ale, will be proper to recover the Tone of the Fibres, and these may be given alone, or added to the Ale above directed, in an *Apoplexy* and *Vertigo*. But as the external Parts are so sensibly affected in this Distemper, therefore Embrocations of hot and penetrating Oils and Spirits are to be rubb'd, wherever Motion is lost or impair'd; such as the Oil of Petre, Oil of Amber, Oil of Sassafras, and the like, mix'd with the Soldiers Ointment, or Ointment of Marsh-mallows, with a small quantity of Spirit of Sal Armoniac, or other volatile Spirit.

Sweating in a Dunghil, or with very warm cloathing, will likewise be of great service; as also frequent Drinks of the Decoction of Guaiacum, Sassafras, &c. such as is prescrib'd for the *Farcin*.

Lastly, A Horse ought, in all paralytick Cases, to be rowl'd in one or more Places; for by that means a great deal of the moist or viscid Matter will be discharg'd, and the Nerves and muscular Fibres strengthen'd.

C H A P. XVII.

Of the Falling Evil and Convulsions.

THE *Falling Evil* is that which, in the *Physicians* Terms, comes under the Denomination of an *Epilepsy*, and seems to be no other than an Apoplexy or Vertigo, accompany'd with Convulsions, either as the Cause or Effect.

In the *Falling Evil*, a Horse drops down of a sudden, his Teeth and his Eyes become fix'd, but his Head and Body is shook and extremely agitated; Froth bubbles out of his Mouth, his Flanks heave and labour, and sometimes there is an involuntary Excretion of the Dung and Urine: All which arise from an involuntary and disorderly Motion of the Blood and animal Spirits, rushing with greater impetuosity into a Muscle on one side, than that, which is its Antagonist, so as to occasion a Vellication and Contraction of that Muscle; and because there is not an equal quantity of Blood and Spirits detach'd into the opposite Muscle, therefore that Member cannot be extended as well as contracted, but drawn one way, and the Part affected will continue immoveable, excepting in those violent Shocks and Agitations.

The Cause of Convulsions are, *first*, *The Cause of* whatever wastes and exhausts the Body, or *Convulsions*. any of its Parts, as the taking away too much Blood, violent Purging, or hard Labour, long Sickness. *Secondly*, Whatever fills the Body too much, and gives origin to Obstructions in the Blood-vessels, or Nerves, or brings a Debility and Weakness into the Stomach: And, lastly, Wounds, or whatever else causes Pain and Inflammation.

As to the Cure, it is the same with that of an Apoplexy or Vertigo; only this general Rule is to be observed, that when it proceeds from Looseness, Evacuations by Bleeding and Purging are to be laid aside, excepting where some Circumstances may make a moderate use of them necessary; but as our *British* Horses are seldom troubled with these Disorders, excepting when they are occasioned by Wounds, or other things inducing exquisite Pain and Vellications in the more sensible Parts; and because these will be taken notice of in their proper places, we shall therefore omit saying any thing farther about them here.

C H A P.

C H A P. XVIII.

Of the Lethargy, or Sleeping Evil.

TH^{O'} this Distemper is as seldom to be met with as the former, yet because it has been treated of by some of our Authors, we shall say as much concerning it as is needful.

Markham observes, that it proceeds from Phlegm; and that white and dun Horses, being of a phlegmatick Disposition, are most subject to it. But a Lethargy is as nearly'd to those that have been the last describ'd, as possible, and is oftentimes their Companion, and is produced by the same Causes which bring on an Apoplexy, or any of the other Distempers peculiar to the Head. For in a Lethargy, tho' a Creature is not absolutely depriv'd of Sense and Motion, yet by a Pressure of the small Arteries upon the Nerves, and an over-thickness of the nervous Juice, both the external and internal Senses become dull, causing a perpetual Inclination to Sleep, which, at length, as it impairs the Animal Faculty, weakens and decays the Body.

The Cure. The Cure is in the beginning to take a moderate quantity of Blood, if your Horse be in good Case; but if he be very poor, and that the Disease has taken its Origin from Exinanition, then your Horse, if at all, is to be but sparingly bled or purged.

But chewing Balls of the most fetid stinking things imaginable are to be us'd every Day, so far as the Horse's strength is able to bear the Action; for these will help to rouse his Spirits, and put the Blood into a brisker Motion. And for the same purpose volatile Salts or Spirits, as those of Armoniack, or Harts-horn, may be sometimes held to his Nose. The Cinnabar Balls, directed in an Apoplexy and Vertigo, ought also to be given him every Day, and continued for a considerable time, and Rowels or other Issues ought to be put into his Belly, but particularly a Hair-Rowel put through his Skin behind the Poll of his Head, which alone will suffice, if the Horse be weak. In which Case also he must be well kept, by having Food often, tho' but little at a time. By this Method your Horse may be recovered, if he is not wore out with Age, or very much broke by the continuance of his Disease.

C H A P.

C H A P. XIX.

Of the Frenzy and Madness in a Horse.

ALTHO' we are very well assur'd that our *British* Horses are not often subject to Madness, yet because the *Italian* Authors, and likewise some of our own, have rank'd it among the Diseases of the Brain, &c. we shall therefore, in obedience to Custom, before we leave this Subject, take Notice of those things that are the most likely to produce frantick Disorders.

First of all then, a Frenzy may be caus'd by the excessive Hurry of the Blood in a legitimate simple Fever; but that Symptom will very readily abate, by those things that are proper to assuage the Violence of that Disease.

Secondly, Blood or Matter collected upon the Brain, or the Membranes that involve it, may occasion a Frenzy, whether that proceed from Wounds or Bruises, or from a Distraction or Rupture of the Vessels, when they have been over-full and distended beyond Measure, or when there is any foreign Substance, grown within the Skull; but then a Frenzy arising from such Causes will probably end in sudden Death.

Thirdly, a Frenzy may follow upon the Bite of any venomous Creature; but this will affect the Head as a Pestilential or other malignant Fever, and as to internals, must be treated after the same manner; what relates more especially to the Wound, shall be taken Notice of in its proper Place.

But *Lastly*, That sort of Frenzy, which in a more particular manner deserves the Name of Madness, is what may happen without the Concurrence of any other Disease, and is most likely to proceed from excessive Lust, occasion'd by full Feeding, either in a Horse or Mare, and when they are restrain'd from Copulation; for by this means many lively Images may be presented to the Imagination, without any Certainty or Order, and like a Dream delude the Fancy; so that they will be apt to tear and rend every thing that comes before them. But this may also be cur'd by Bleeding and Purging, with the Concurrence of a low Diet, &c.

*The Stallion snuffs the well known Scent afar,
And snorts and trembles for the distant Mare;*
N Nor

*Nor Bits nor Bridles can his Rage restrain,
And rugged Rocks are interpos'd in vain;
He makes his Way o'er Mountains, and contemns
Unruly Torrents, and unforded Streams.*

DRYDEN'S *Virg. Georg. Book III.*

*But far above the rest, the furious Mare,
Barr'd from the Male, is frantick with Despair;
For when her pouting Vent declares her Pain,
She tears her Harness, and she rends the Rein:
For this when Venus gave them Rage and 'Pow'r,
Their Masters mangled Members they devour,
Of Love defrauded in their longing Hour.* Ibid. }

CHAP. XX.

Of the Diseases of the Eyes.

TH E R E are no Diseases whereunto Horses are more liable, than those that happen to the Eyes, the Reason of which will not be very difficult to any one who is acquainted with the Oeconomy of a Horse, but particularly with the Structure and Mechanism of the Eye, which is such a tender Part, and so sensible to the Touch, that the least foreign Matter from without, as a Grain of Sand, or a little Dust, will put any Creature into exquisite Pain, and the least Determination of Blood and Spirits from within, more than ought to come into those Parts by the common course of Circulation, will have the same Effect. But when we consider the natural Activity of a Horse, and that the common Service requir'd of him, exposes him more to Heats and Colds, and to all manner of Fatigue and Toil, than any other Creature; and that of consequence he is render'd more liable to Sicknes, and such as is of the worst kind; he must therefore be more subject to Infirmities of the Eyes, and such as without a great deal of Care will be apt to end in absolute Blindness.

All Diseases of the Eyes proceed either from external or internal Causes, or from an ill Conformation of the Eye.

Now all the Diseases of the Eyes proceed either from external Causes, such as Wounds, Bruises, Dust, or other foreign Matter getting within the Eyelids; or from internal Causes, such as are the Effect of Sicknes, or any Indisposition of the Blood. And, lastly, a Horse may be render'd obnoxious to Diseases in

in his Eyes, from an ill Conformation of the Eye itself; as for instance, when the Eye happens to be too large or too small, or when the Pupil, or clear transparent part of the Eye is narrow, and somewhat longish, as is observable in many Horses; for in this Case the CrySTALLINE Humour seems to be over much compress'd by the circumambient Parts; and if any Rheum, or flux of Humours, happen to fall into an Eye that has this Defect in it, the Infirmary will readily increase, and in time the *Retina*, or bottom of the Eye, will be quite hid, so as to produce Blindness. Yet notwithstanding all these Imperfections, a Horse's Eyes may be very good, if he be otherwise of a hearty Disposition; and they may continue good during his Life, if there be proper Care taken of him, and that he meets with no Accident; however, as all Diseases are the worse the more they are complicated, therefore when any Accident happens to the Eyes, its Cure will be the more difficult, where there is, besides the Disease, a natural Defect and Imperfection in the Eye itself.

Having thus distinguish'd between those Diseases of the Eyes that proceed from external Accidents, and those that arise from internal Causes, or from an ill Conformation of the Eye itself, or when there is a Complication of those Causes; we are in hopes, by this general Division, the Diseases incident to the Eyes of Horses will be much the better understood, because all the different sorts of Blindness, and all other Accidents whatsoever happening to the Eyes, are reducible to one or other of these general Causes, which not being sufficiently attended unto by Farriers, has made those Cures hitherto very imperfect.

C H A P. XXI.

Of a Wound or Blow on the Eye, as also of other external Accidents.

THE Diseases which are caused by outward Accidents become more or less dangerous to the Eyes, according as the Cause is more or less violent, but especially as the Horse happens to be in a good or bad state of Health when such Accidents befall him.

When the Cause is simple, as for instance, proceeding only from Dust, or any other extraneous Matter blown into the Eyes, or when

Small Accidents on the Eyes, how cur'd.

N 2

they

they are hurt by sharp frosty Winds, or the like; if these Disorders do not wear off immediately upon rest, as is usual, then the Eye ought to be look'd into; and if there be any bit of sharp Sand or Gravel sticking to either Angle, it should be wip'd out with a bit of very fine Sponge, cut small at the Point, and ty'd with a wax'd Thread to the end of a Stick; if there is nothing to be seen, the most simple and easy things in the beginning will go nigh to relieve them, and recover them to their usual Strength and Vigour, as a little Plantain and Red-rose Water, or the Leaves of Plantain and Red-roses boil'd in Water, washing the Eyes with the Decoction three or four times a Day Blood-warm.

But when a Horse receives a Wound or Blow on the Eye, or so near as to cause an Inflammation in the Eye, *The Cure of a Wound or Blow.* the first thing to be done in this Case is, to open the Neck-vein, taking from thence a moderate quantity of Blood; and this I rather chuse than opening that near the Eye; because when the Neck-vein is open'd, it will not cause so great a Derivation towards the Eye, as when the Eye-vein is open'd; for when an Orifice is made too near the affected Part, the Blood is apt to flow in an over-great quantity towards that Part, as we have already observ'd in another place; and the Eyes being in a dependent Position, as they are situated in the lower Part of the Forehead, the Blood therefore falls by a very easy descent into them.

After Bleeding, the Eye may be look'd into, but if it be so much swell'd that it cannot easily be open'd, as it often falls out, because of the immediate Flux of Blood into the Eyelids; then the following Application may be made, *viz.*

“ Take Conserve of Red-roses, spread it pretty thick
 “ on a Pledgit of fine Flax, or clean Hurds, and lay it
 “ over the Eye, applying at the same time above the Eye-
 “ pits, and about the Temples, Flax dipp'd in a Charge
 “ made with Vinegar, the White of an Egg, and Bole-
 “ armoniack; this by allaying the Heat, will put a Check
 “ to the Blood, and hinder it from flowing too fast to-
 “ wards the Eye.

The whole Dressing ought to be cover'd with a Bandage about four or five Inches broad; this may be made of pretty thick, but soft Canvas, stitch'd to the upper part of the Collar, so as to cover the half of the Face; when the

the Sorance is but in one Eye, it ought to reach to the middle of his Nose, and to have a piece of strong Tape fasten'd to each of the lower Corners to tie behind; but this must be so easy, as not to hinder the Action of the lower Jaw.

Bathe or moisten the Edges of the Eye-lids with warm Honey of Roses and red Wine two or three times a Day. There will be no Occasion of torturing him too much, by forcing Medicines into the Eye, for in all such Cases those harsh Methods do more Harm than Good, for as the Eye is a tender sensible Part, it is to be us'd with all the gentleness imaginable.

But because an increase of the quantity of Blood must certainly be prejudicial where the Eye is bruised or wounded, and has a great tendency to Inflammation; therefore, besides the opening of a Vein (a Method of dressing being now set on foot) some other Evacuations may be encouraged, for which Purpose he may have purging Clysters, or every now and then some kind of Physick that is very moderate; for strong Purging, by putting the Blood in too great an Agitation, would be apt to make it flow over-readily into the diseased Part, which is to be avoided as much as possible; and therefore I prefer the Use of Clysters to other Purging, in this Case especially, as we don't suppose any Fault in the Blood.

And therefore seeing the Body is only to be kept cool, so far as relates to Internals, a soluble Diet must also be very proper, giving him, instead of Oats, scalded Bran, as also now and then a Mash of Malt; and in his Water may sometimes be dissolv'd half an Ounce of purify'd Nitre or *Sal Prunelle*, which will also contribute to the same end.

His Exercise ought to be gentle, such as will not excite too great Heat, but rather cool and refresh his Body, and create an Appetite.

If there be the appearance of proud Flesh upon the Wound, take Powder of Tutty finely levigated, and lay a little of it on the Excrecence once a Day: or thus, Take Tutty prepar'd, burnt Allum and Sugar-candy in fine Powder, of each equal Parts, take a small quantity of this Powder between your Finger and Thumb, and apply it upon the Fungus.

A Wound or Blow may be thus easily cur'd if the Eye is not very much bruised, or if the Wound be but super-

ficial, and clear from the *Pupilla* of the Eye; but when it is otherwise, Death or Blindness may be expected.

When a Horse's Eye happens to burst somewhat out of its Socket, by the violence of a Blow or Wound stretching or cutting the Muscles, the first thing to be done is, to reduce it, and put it carefully in its place, applying the Charge as above directed; and after the same method of keeping the Horse's Body cool and open has also been comply'd with, and that it begins to matter, it may be dress'd with the following Digestive, *viz.*

“ Take Honey four Ounces, Oil of Roses one Ounce,
“ and the Yolks of two Eggs, mix them together, by stir-
“ ring them with a Knife, or wooden Slice; and when
“ the Digestive has been made a little warm before the
“ Fire, dip a Pledgit of Flax into it, and apply it over the
“ Eye.” This may be done once or twice a Day, and a
restringent Charge continued over the Dressing, until the
Cure is perform'd, though in reality the Issue will be very
doubtful, if the Muscles are much relax'd or wounded.

Note, In all Accidents where the Eye is bruise'd, or wound-
ed, a Horse ought to have no Oats given him but what
are boil'd soft, until the worst Symptoms are gone; but
especially in this last Case, where it is protruded and thrust
out of its Socket, for then his Food ought to be only scald-
ed Bran, now and then with a mixture of Oats; because
the Action of the Jaw, in chewing hard Food, would be
a great means to hinder the Cure.

CH A P. XXII.

Of Rheums and Inflammations in the Eyes.

*Rheums and
Inflammations.*

TH O' Rheums and Inflammations, for
the most part, accompany the slightest
Disorders in the Eye, yet, if after a Wound or Bruise has
been heal'd, the Eye continues weak and indispos'd, a Horse
will become much subject to those Disorders for the fu-
ture, especially upon every Change of Air or Diet, or as
often as he chances to be rid harder than ordinary, or put
upon any uncommon and unusual Exercise.

The like will also happen from any other Cause inducing
a weakness into the Eye, as after a Cold, or other Sick-
ness affecting the Eyes, and where there has not at first
been

been sufficient Care taken to put a Check to the Influx of the Humours, or to take off their Acidity and Sharpness; for by this means the Eye becomes injur'd, and is render'd liable to Rheums and Defluxions, and to many other Accidents, notwithstanding the Horse may, in all other respects, be recover'd to a good state of Health.

Sometimes these Symptoms do accompany, or are the Effects of an ill Habit of Body; whether that be induc'd at first by an Over-plenitude, or if it arises from Debility and Lowness, or from any other Cause, whereby the Blood becomes vitiated; for as the Eyes are very tender, and of exquisite Sense, they must therefore be as sensibly affected in all such Indispositions, as any other Part of the Body.

And therefore, in order to the Cure, the Farrier ought to examine diligently both in- *The Cure.*
to the past State and present Condition of the Horse. If he finds him under any Indisposition, then his first and chief Care must be to remove that; that, for instance, if he be Hide-bound, or if he has got the Farcin or Mange, &c. such things as are hereafter order'd in those Cases, must be administer'd to him at the same time that proper Applications are made to the Eyes; but if a Horse be otherwise in a tolerable state of Health, the Farrier may conclude, that there is either some natural Infirmary in the Eye, disposing it to those Disorders, or else that the Eye is render'd very weak and diseased, by a continual Defluxion upon it; in either of which Cases it will not be very needful to burden him with Medicines; but yet if the Horse be full of Flesh, lest the Distemper should be over-much fed, a moderate quantity of Blood may be taken from him, and he may be purg'd gently every Week, or have now and then a Clyster given him; and the other Rules of Diet and Exercise, which have been laid down in the foregoing Chapter, may also be observ'd.

After these general Directions, we shall conclude this Chapter, by inserting such Remedies as the Practice of the best Marishals has warranted to be the most effectual in all outward Intentions, where the Eyes have been troubled with sharp Rheums and Inflammations.

If the Eyes are only inflam'd, without a Defluxion of *Serum* upon them, they may be wash'd once or twice a Day with a little Wine, red or white; or Wine wherein the Leaves or Tops of the common Briar have been boil'd; or if these are not in season, the following may be us'd.

“ Take Camomile and Red-rose Leaves, of each half a Handful, boil them in a Pint of Water, till a fourth part be consum'd, strain the Decoction, and add to it a Dram of Camphire, first dissolv'd in a Spoonful of Brandy.” Let your Horse's Eyes be moisten'd therewith two or three times a Day.

Or the following Remedies may be us'd, which will be of equal service in all Cases where there is a De-fluxion of Rheum, as where there is only an Inflammation.

“ Take white Vitriol two Pounds, Roch-allum three Pounds, fine Bole-armoniac half a Pound, Litharge of Gold or Silver two Ounces; reduce all the Ingredients to Powder, and put them into a new glaz'd earthen Pot, with three Quarts of Water, boil them very gently over a small Fire without Smoke, set equally round the Pot, till the Water be evaporated, and the Matter at the bottom perfectly dry; then remove the Pot from the Fire, and suffer the Matter to cool, which ought to be hard, and will still grow harder the longer it is kept.” This is called the *Lapis Mirabilis*, or wonderful Stone.

“ Put half an Ounce of this Stone in a glass Bottle, with four Ounces of Water, it will be dissolv'd in a quarter of an Hour, and make the Water white as Milk, when you shake the Bottle; you must wash the sore Eye Morning and Evening with the Water or Solution.” A Solution thus made will keep twenty Days.

This I have taken from the *Sieur de Solleysell*, who gives the following Account of it; and, doubtless, it must be very good.

“ Some Apothecaries (says he) keep this Stone in their Shops, and make use of it for Men; and as for me, I use it for Horses, nor ever seek any other Remedy for Rheums, Blows, or Moon-eyes. Every Man that is Master of a Horse ought to keep some of it by him, for it will keep very good long; and there are few Remedies of the Eyes that are not inferior to it.

Many of this kind might be added, but we shall content ourselves in this Place by inserting one more, which has been us'd with equal Success both to Man and Beast; and has been recommended for such Intentions by one of the best Judges; and is as follows.

“ Take

“ Take Roman Vitriol and Bole-armoniac, of each two Ounces, Camphire half an Ounce, and powder them together ; of this Mixture sprinkle half an Ounce at a time in two Pound of boiling Water, in which stir it well about, then take it off the Fire, let it settle, and decant off that which is clear by Inclination.” This is an excellent Remedy, not only for Rheums and Defluxions of the Eyes, but for many Purposes externally. It may be made stronger or weaker as the Practitioner shall see occasion.

C H A P. XXIII.

Of Lunatick, or Moon-Eyes.

WHEN a Defluxion of Rheum has continu'd so long as to cause an obstinate Stagnation in the small Arteries of the *Tunica Adnata*, or outermost Coat of the Eye, and a Relaxation of the small Kernels that are seated at each of its Angles, it becomes then very hard and difficult to be cur'd ; but by the Lentor and Corrosiveness of the Matter, it at length destroys the transparency and clearness of the *Cornea*, so as to cause Blindness ; and when this happens to a Horse, he is said to be Moon-blind.

Now this Distemper, which goes under this Name, does not always make one continued Progress ; but oftentimes the Rheum, in a great measure, dries up ; and when that happens, unless the Matter has been so sharp as to corrode the *Cornea*, a Horse's Eye will again look clear and transparent ; but because those Parts have been so much weaken'd, and the Glands so much relax'd, every little Error committed either in Feeding or Exercise, and every slight Cold, and even the sharpness of the Air, will cause a Return of the Humour ; which Vicissitudes have occasion'd Farriers, in ancient Times, when, thro' Ignorance, much was ascrib'd to the Influence of Planets, to attribute this Disorder to the Moon, insomuch that even the *Sieur de Solleysell*, being prepossess'd with the same Notion, very gravely says ; “ That the Eyes of those Horses, which are troubled with this Distemper, are darken'd with a Rheum at certain times of the Moon, whereas at other times they appear so bright, that you would conclude “ they

"they were perfectly sound." And afterwards he adds, "That some enjoy an Interval of six Months, others are troubled with a Return of the Distemper once in three Months, and some grow lunatick every two Months." But according to the strictest Observation I have been able to make, this Distemper seems to bear a near affinity with that which in Man is called the *Epiphora*, resembling it both in its Signs, Cause, and Effects; only that in Horses it is more fatal to the Sight, because of the prone Position of a Horse's Head, which gives the Humours a stronger tendency towards the Eyes.

The Cause. It takes its Origin, generally speaking, from the want of the common Discharges of the Pores of the Skin, and by Urine; and from those things that may occasion a too great Accumulation of the *Serum* in the Blood, whether they proceed first of all from a Cold, or from any other Cause.

The Signs are also manifest, for in this Distemper the Eyes appear hot, swollen, dark, and troubled with a continual Rheum and Weeping, and according to the last mention'd Author, with a faint yellowness under the Apple, which, as he rightly observes, is the surest Sign, as it must be the constant Effect of excessive Heat and Moisture in those Parts.

The Cure must, as to Internals, be chiefly perform'd by purging Medicines, and such as are of the greatest efficacy to fuse and melt down the ferous Parts of the Blood; for Phlebotomy is needless, and oftentimes proves hurtful in this Case. And therefore if the Horse be costive, after you have open'd him with a Clyster or two, let the following Balls be given him.

"Take of the clearest shining Aloes two Ounces, Turbith Root, in fine Powder, half an Ounce, Diagridium two Drams, Liquorice Powder four Ounces: Make them into large Balls with a sufficient quantity of fresh Butter." Let these be given in Wine, or any other Liquid, to wash them down; and for a Change, the following Purge may be sometimes exhibited, viz.

"Take Aloes and Jalap in Powder, of each an Ounce and a half, Cream of Tartar three Ounces, Diagridium one Dram." Let this be given in a Quart of White wine, Ale, or Beer, without warming it; because if it be hot, some of the Ingredients, as the Aloes and Diagridium, and even the Jalap, if it be resinous, will be apt to run into Lumps.

But if it be hard to get down this Medicine, because of the nauseous bitterness of the Aloes, the Jalap, Aloes, and Diagridium, may be made into a Paste with Liquorice Powder, and a sufficient quantity of Butter as the other, and the Cream of Tartar dissolv'd in the Liquor with which it is to be wash'd down, or in some warm Water, after it begins to work.

The Purging must be repeated twice every Week, or according to the Horse's Strength, walking him for half an Hour after his Physick, as is usual; during which time his Food ought to be moderate, but yet what is necessary to sustain Nature; for the strongest Horse will suffer by purging, if his Food is not in some measure proportioned to it.

And while this Method is comply'd with, as to Internals, his Eyes ought to be constantly wet Morning and Evening with one or other of those Waters, which are the last inserted in the foregoing Chapter; and three or four times a Day let them be bath'd with the following Decoction, made warm every time it is used.

"Take Leaves of Mallows and Marsh-mallows, of each a Handful, Red-rose Leaves and Melilot Flowers, of each half a Handful; the Heads of two white Poppies sliced, and two Ounces of Fenugreek-seeds: boil them in two Quarts of Water to three Pints." This will greatly contribute to blunt the acrimony and sharpness of the *Serum*.

The same Ingredients boil'd with five or six Crab-apples, and afterwards beat in a Marble or Stone Mortar, and pulp'd thro' a Sieve, will make an excellent Cataplasm to lay over the Eye, in order to allay the Heat, and put a Check to the Influx of the Humours.

The Corners of your Horse's Eyes may be also touched now and then with a little of the following Ointment, viz.

"Take fresh Butter four Ounces, white Wax one Ounce, Tutty finely prepared half an Ounce, Sugar of Lead two Drams, white Vitriol one Dram, Camphire two Scruples: Mix and make an Ointment."

As soon as you observe the Symptoms begin to abate, let him be moderately rid every Day in some shady Place; for the Exercise will contribute to mend the Faults of his Constitution: But if you ride him too much in

How a Moon-ey'd Horse is to be manag'd in the Decline of his Distemper.

the

the Sun, or where the Light is too strong, you'll be apt to create fresh Trouble; for though the serous Part of the Blood may be render'd more thin and fluid, and its Acrimony much abated by the use of Exercise, and the help of proper Remedies, and consequently the Moisture lessen'd, yet as the Eyes themselves must be impair'd by a long and continued Defluxion, they must therefore have time to recover that Weakness. For the same Reason, the use of fit Applications must not be too soon laid aside, but such things constantly provided as will comfort and strengthen those Parts, though they ought to be of more gentle Operation than what were us'd during the violence of the Distemper. Wherefore we very much recommend Decoctions of Red-rose Leaves, Plantain, Ground-Ivy, or their distill'd Waters, with those of Eye-bright, Chervil, Celandine, and the like, for outward use; and these to be continued for some considerable Time: And if there be the least Appearance of a Return, a small quantity of white Vitriol, or the white Troches of *Rhasis* may be dissolved in either of these Waters, viz. half a Dram of the Vitriol, or a Dram of the Troches, to four Ounces of the Water: And by following this Method, any Horse may certainly be cured, unless there be some natural Defect in the Eye, or that it has been too much injured by the Corrosion of the Distemper.

*What Methods
are generally
us'd when the
Distemper
proves obsti-
nate.*

Most Farriers, when they find this Disease obstinate, rowel a Horse near the Eyes, and take up the Eye-veins; but in taking up a Vein, I prefer *Solleysell's* Method, because he does not make Incision into the Vein itself, but ties it with a Wax-thread, and by that means the Communication is as effectually stopp'd. But whatever Success may have been attributed to the taking up of Veins for Infirmities in the Eyes, there can be but little said to countenance that Operation, since by tying up those Veins, the return of the Blood is hinder'd; and therefore it can only be supposed to do service where the Eye is shrunk, and like to perish for want of its proper Nourishment. As to rowelling, that may indeed, and often is of service, because by it many small Vessels, both Veins and Arteries, are opened. And as the Arterial Blood moves with a greater *Impetus* than that of the Veins, the greatest part of the Discharge must therefore be from the Arteries; so that a lesser quantity of Blood must be deriv'd towards the Eye.

Some

Some make the Rowel at the side of each Eye, which is not amiss, when upon the Muscles on the Flat of the Cheek-bone. Others make a Seaton under the Poll, which is also very proper, and will not disfigure a Horse, so much as the other. The way to perform this is, by passing a large three-edg'd Needle under that part of the Horse's Neck where his Mane begins; or if you would rather choose to do it without Blood, make use of a sharp Iron almost red hot; when you have pierced the Flesh, have a large Probe-Needle in Readiness, with a plaited Hempen Cord, or one of Hair dip'd in Wax or *Basilicon*, to follow the Iron: This may be moved once or twice a Day, and every now and then fresh Ointment put upon it to keep it running.

But there are besides the taking up of Veins and Roweling, several other Operations made by Farriers for the Cure of Lunatick Eyes; as the giving the Fire, and cauterizing the upper Part of the Forehead; and some, when the Case has been desperate, have had Recourse to a very desperate Cure, and to save one Eye, have put out the other, by running a Needle across through the Eye-ball: But we can say very little in favour of these Operations, not only as they are both excessive painful and uncertain, but also as they have had but small Approbation by those who have been the best Judges. But there is one other, which, in some Cases, may be necessary; and if it does not make a Cure, yet if it be well perform'd, it sometimes affords Relief, and that is *cutting out the Haw*, which is only some part of the kernelly Substance that lies at the Corners and Bottom of the Eye, which being very much relax'd, and, as it were, soak'd by the continual Influx of the Rheum, at length enlarges to such a degree, that like a Piece of Sponge, it thrusts out the under Eyelid, and thereby occasions both Pain and continual Weeping.

Now when you have apply'd all things that are proper to harden and constringe that glandulous Substance, and so to make it contract itself, but without Success; and when you observe the Excrescence grown so large that it cannot be easily destroy'd by any Application, that would not at the same time hazard the Eye, then recourse must be had to cutting, which ought to be gone about in the following manner.

The Horse being cast, and so secur'd that he cannot move, you are to take a Needle arm'd with a wax'd Thread, and having pierc'd the under Eyelid below the Gristle that sur-

*How to cut the
Haw out of a
Horse's Eye.*

rounds

rounds it near the Corner towards the Nose, you are afterwards to give the Thread to some skilful Person to hold, that the Eyelid may be kept open; and by this means the Excreſcence will fairly appear. The Operator muſt then, by the help of a fine Hook, take hold of the upper part of the Excreſcence, and draw it upwards, that he may ſee all Parts to which it adheres, and with a very fine Inſtrument ſeparate firſt above from the Eye-ball, and then below from the under Eyelid; and if it grows pretty far backwards towards the outer Corner of the Eye, another Thread ought to be drawn through the under Eyelid, about its middle, paſſing the Needle alſo under the Griſtle, that by holding back the Eyelid, it may be the more eaſily ſeparated from thence: And when it has been in this manner freed from all its Adheſions, both above and below, it muſt be cut as near as poſſible to the inner corner and bottom of the Eye, drying up the Blood and Moiſture with a ſoft Sponge.

This Operation is perform'd by the *French*, and ſome *Italian* Farriers, but ſeldom or never by the *Engliſh*, unleſs when there is an *Unguis*, which is a hard, membranous, or rather cartilaginous Subſtance, growing to the inner Corner of the Eye, which almoſt every Smith can take off, by paſſing a Needle thro' the upper part of it; and when they have pull'd it gently out by the Thread, they cut it off with a ſharp Inſtrument, or Sciſſars, and that is what our Farriers call *cutting out the Haw*; and this is indeed a more eaſy, and perhaps a more neceſſary Operation than the other.

After the Operation has been thus perform'd, the Eye may be waſh'd with red Wine, or *Aqua vite*; and to prevent a freſh Inflammation, which will readily enough happen after cutting, a reſtringent Charge made with Vinegar, Bole-Armoniack, &c. may be apply'd over the Eye and Temples, until ſuch time as it comes to be in good temper; and a little Honey of Roſes may be ſometimes dropt into the Eye warm, which will bring the Matter to a good Diſteſtion; but if there be the leaſt Appearance of a freſh Excreſcence, which is not uncommon in thoſe moiſt Parts, and eſpecially where they cannot be kept down by the application of Bandages, then recourſe muſt be had to the Vitriol Water, or the Solution of the *Lapis Mirabilis* inſerted in the foregoing Chapter; and in the mean while the Eye muſt be as little as poſſible expoſ'd to the Light. By all which means a great Check will be put to the Humours, and their Conflux will be much leſs for the time to come.

Moſt

Most People are of Opinion, that this Distemper is hereditary, as well as govern'd by the Moon; and therefore that it is never to be cured. It is very true, a perfect Cure is very hard to be effectuated, especially when it has been of long continuance; but I am very sure, and so must every one who is the least acquainted with the animal Oeconomy, that tho' a Horse may naturally be of such a Constitution, as will dispose him more particularly to this Distemper; yet the same may proceed from any other Cause. We shall therefore put an end to this Chapter, by inserting an Observation of one *Taquetus*, as it is recited by the *Sieur De Solleysell*, because it may be of service to Gentlemen who breed Horses; since it is more easy to prevent Diseases by proper keeping, than it is to remove them when once they have got sure footing. *Solleysell's* Words are these:

"This is an hereditary Distemper, and therefore great Care must be taken to choose Stallions that have good Eyes; it may also be occasion'd by the Foal's eating Oats with his Dam when he is but one year old, or younger; for by their straining and endeavouring to chew the Oats, the Veins above and about their Eyes are stretch'd and distended, and consequently draw too much Blood to those Parts, which by the too great quantity of Nourishment, are heated and render'd obnoxious, either to that kind which follows the Course of the Moon, or to the other, which wastes and destroys the Eye. I have borrow'd this Observation from a Treatise concerning Horses, compos'd by one *John Taquet*, who expressly affirms, That the Loss of the Foal's Eye is not occasion'd by the Substance of the Oats, which may be suppos'd to heat them, but only by their straining too hard in chewing that hard sort of Food; and to prevent those fatal Consequences, he advises those who have Foals, to cause their Oats to be ground or stamp'd; by which means, he says, they will grow strong and lusty, without the least danger of Rheums, or any other Infirmary in the Eyes."

I shall only add to what *Taquet* has judiciously observ'd, that over-much feeding, of whatever kind, as it easily causes an over-plenitude in young Horses, who eat heartily, may therefore very readily bring Defluxions and other Weaknesses upon the Eyes: And many of our *English* Colts suffer by an Excess of this kind, as others do by being

ing put too early to hard Labour, and owe their Diseases in the Eyes more to these Errors, than either to the Moon, or to their Sire.

C H A P. XXIV.

Of Films, Webs, and other Diseases of the Eyes of Horses, causing Dimness or Loss of sight.

External blindness from Films and Scars on the Cornea.

WE often observe, after a Horse has been some Time troubled with a Defluxion of Rheum, or other Disorders in his Eyes, little thin Substances grow over them, so as to obscure the sight, and these sometimes adhere so closely to the Eye, that it is very hard to remove them: sometimes from the same Causes, or from some slight Wound, the *Cornea*, or horny Coat of the Eye, is render'd obscure, that the Light cannot pass through it; for when it is fretted by the Corosion and Sharpness of Matter, and its Substance abraded and wore; or if that happens by any outward accident, its Reunion may easily become imperfect, because of its exquisite Fineness, which cannot be again equally united, but, like a Darn in a piece of fine Lawn, will appear with a visible Blemish, and become more or less injurious to the Sight, according as the Eye has been more or less hurt.

The internal from the Humours, or innermost Parts of the Eye.

Sometimes the Causes of Blindness or Dimness are more internal, and, according to some, may proceed from a Condensation or curdling of the Humours of the Eye; which, though they be naturally clear and transparent, yet by excessive Heat they become thick and opaque, like the White of an Egg when it is boil'd. Sometimes Blindness is occasion'd by some foreign Substance gather'd in the watry Humour of the Eye, which at length increases so as to hinder the Light from passing through the chrystalline and glassy Humours into the *Retina*, or bottom of the Eye. This Defect in a human Eye is called a *Cataract*; and is the same which the Farriers distinguish by the different Names of a *Speck*, *Pearl*, or *Dragon*, according to its different Appearances, or according to the Progress, it makes on the Eye.

Eye. When it is very small, and shows itself only in the bottom of the watery Humour, it is then called a *Dragon*; if more towards the Surface, a *Speck*; and when it comes to its Maturity, and covers the whole Pupil, or Apple of the Eye, or when it is grown pretty large, it is called a *Pearl*. But there is one sort of Blindness, which is as common and usual among Horses as any other, and that is, where there is no visible Defect in the Eyes, but the outward Coat and Humours appear transparent, and without Blemish, and this sort is as difficult to be removed as any; because the Fault lies in the Compression of the *Retina*, or Optick Nerve, by an over-great Distention of the Vessels that are interwoven in it.

When the Eye is only cover'd with a Film, *The Cure of external Blindness.* or membranous Substance, unless that has its Origin from a Scar made on the clear transparent part of the *Cornea*, or horny Coat, it may, and is often cured by external Applications only, and such as are very easy and simple; as the Juice of Celandine, Eye-bright, and the like, dropt into the Eye; but when there is a Scar, or if the Film adheres very close to the Substance of the Eye, things of a more powerful Operation will then be requir'd; as the camphorated Water, or the Water made by a Solution of the *Lapis Mirabilis*, as directed in the Twenty-first Chapter; or the following Eye-water, which I have often experienced to be most effectual, not only to clear the Eye from Films, &c. but do the greatest service in all Rheums and Defluxions, and even cure those where there has been an apparent Defect on the *Cornea*.

" Take unslak'd Lime four Ounces, and pour upon it a Quart of boiling Water; after it has settled some time, and grown clear, pour it off gently from the Lime, and then filter it through brown Paper, and put it afterwards into a clean Brass or Copper Pan, and dissolve in it one Ounce of crude *Sal Armoniack*, letting it stand in that Vessel until it turns to a very beautiful blue Colour, then filter it as before, and keep it for use. Let four or five Drops of this Water be instill'd into the Horse's Eye every Day, once or oftner, as there shall be occasion.

This Water will keep a long while, and is not only useful to the Eyes, but to wash all old obstinate Ulcers; and therefore may at any time be made in a larger Quantity.

If your Horse's Eyes be also hot and swoln at the same time these outward Defects are apparent on them, he ought to be bled, purg'd, and rowel'd, according as you find him in case to bear it ; and by these means his Sight may certainly be preserv'd, unless the *Cornea* be very much injured.

There are many other Remedies to be met with in Authors, which may be outwardly used with Success, as those compos'd of the *Vitriols*, crude *Sal Armoniack*, *Camphor*, and the like, and are enough in the acquaintance of most Farriers ; but such as are made of Shells, Powder of Glass, and the Powder of Flint, or of *Turkish* Whetstone, can only be successful, as their sharp Points may tear the Substance of those Bodies that grow over the Sight, while they roll about in the Eye ; yet as these cannot be dissolv'd, but often stick in the Corners, and in the soft Flesh in the bottom of the Eye, and thereby cause violent Inflammation, they are therefore not to be meddled with, unless when the Case is desperate ; for it may be often observ'd, that the use of such harsh Things, while the Defect is only in one Eye, brings it into both, by reason of the constant Sympathy there is between them.

But we shall now proceed to those Defects which are more internal ; and though we do not propose a Cure for such as are obstinate, or out of the reach of common Applications, yet we shall lay down the most certain Signs whereby they may be distinguished, and at the same time administer those Helps that are the most rational in those Cases.

The Signs of internal Blindness.

First then, if one or more of the Humours of the Eye should be coagulated and thickened, as abovemention'd, this must be apparent to any one, because the bottom of the Eye, which is plainly visible in a Horse, or any other large Animal, must then be hid, and nothing can be seen but the Colour of the condens'd Humour thro' the *Cornea* ; but this kind of Blindness rarely happens, unless it proceed from a Wound or Bruise, and then it becomes incurable.

The next inward Imperfection, so far as it affects the watery Humour of the Eye, is somewhat akin to the former, and is very frequently to be met with among Horses, insomuch that some have been foal'd with *Cataracts* or *Pearls* on their Eyes : But as this Defect also lies within the *Cornea*, it is not to be cured in Horses ; for nothing apply'd

apply'd outwardly can reach it, but what would at the same time destroy the Eye; and therefore it is in vain that Farriers use corrosive Medicines to eat off Cataracts, as is commonly practis'd among them. Neither would internal Means, or any Operation avail much towards removing it, tho' that has also been essay'd by Mountebanks; for after a Cataract has been couch'd, as those Creatures are unmanageable, it generally grows again, and the Horse remains blind.

Cataracts are of different Colours, yellow, black, and white; yet those to which *The Signs of a Cataract.* Horses are chiefly subject, are either whitish, or of a Pearl blue, or inclinable to green, and are easily known, because in the beginning they are but very small, but grow larger, as that Matter which forms them is continually falling into the watery Humour. But there is one Sign whereby to know a Cataract, especially before it is ripe; and that is, by rubbing the outside of the Eye; for by that means it will a little shift place.

There have been other Signs taken notice of by all physical Writers; as when there is the Appearance of Flies, Dust, or Hairs, floating before the Sight. And Mr. *Snape*, in his third Book of *The Anatomy of a Horse*, Chap. 13. speaking of the Watery Humour, has apply'd these Signs to Horses which are apt to start without Cause. His Words are these:

"It is observ'd in Men, that if any clotted and coloured Bits or Motes swim in this Humour, the shapes of several Insects, as Gnats, Flies, Spiders, and the like, will seem to be flying before their Eyes, as has been often declared by Men who have had this Affliction. I am therefore apt to believe, that many Horses are not without such kind of congealed Bits floating in this Humour, that without any evident or external Cause to occasion it, are much given to start, especially with their Head, the Representation of the foresaid Insects moving before the crystalline Humour, which makes them fear something or other is still flying into their Eye.

"Yea, it is in human Bodies farther observ'd, that oftentimes several of these coloured Particles in the watery Humour do gather together, and unite so close, that they grow, as it were, into a Skin or Film, spreading before the Sight of the Eye, which causes an absolute Blindness, and is that Disease which Physicians call a *Cataract*;

“ which Disease the Animal we are treating of is much
 “ subject to, though we have not so proper a Term for it
 “ as this is.

But a late eminent Physician has observ'd, that these Representations cannot be occasion'd by any kind of Matter floating in the watery Humour, because the Position of the *Retina*, and Convexity of the *Cornea* is such, that all Bodies must be placed at a greater distance from the Eye than the aqueous Humour, or the *Cornea*, to cause such Appearances; and therefore he says, those Signs can only be exhibited, when the Parts of the *Retina* are over-much compressed by a Distention of the Arteries. And this may

A Gutta Serena.

happen, and is oftentimes the Cause of a *Gutta Serena*, which is the last sort of Blindness which we mentioned, *viz.* where the Eye seems to have no visible Defect in it. And therefore, as that Author has observ'd, whenever those Signs appear with a Cataract, any such Cataract must at the same time be accompany'd with a *Gutta Serena*; for a *Gutta Serena* is often the Concomitant of other Diseases of the Eyes, but is only distinguishable as such, when the *Cornea* and Humours are transparent.

The Signs.

Now I am apt to believe, there are but very few who have bought many Horses, and have not had Experience of this sort of Blindness to their Cost. And the Signs that Mr. *Snape* has attributed to a Cataract, when a Horse starts with his Head, if that is not the Effect of Fear, it is, no doubt, to be suspected as a Token of bad Eyes, and to denote that Imperfection which we are now treating of: But there is one, which is the most infallible, and more to be depended on than any other, *viz.* when a Horse moves his Ears backwards and forwards, and often points them towards his Eyes, as if he wanted to drive away Flies, when there are none near him: And if he renew his shaking of his Ears, as often as he is turned to a new and different Light, it may be then, with very good reason, suspected, his Eyes are defective, tho' nothing appears outwardly upon them; and this I have oftentimes observ'd in Horses that were ill-fighted, and have known it sometimes the fore-runner of absolute Blindness.

These being the Signs of a *Gutta Serena*, and the immediate Cause being a Distention of the small Arteries pressing upon several Parts of the *Retina*, as was observ'd; what-
 ever

ever therefore be the *Procatartick* Cause (as Physicians term it) whether from Colds, Surfeits, or from any Fault in a Horse's Feeding, &c. it is very certain the Cure must consist in all those things that are proper to open Obstructions in the smallest Passages; for by that means those in the Bottom of the Eye may be removed.

Wherefore if your Horse has Strength *The Cure.* enough to bear it, he ought in the first place to be bled, and afterwards purged two or three times with the Remedies prescrib'd in the preceding Chapter; but Rowelling must by no means be neglected: And because the mineral Kingdom affords us with Medicines of the most powerful Operation in all such obstinate Cases, Recourse may be had to the antimonial Balls directed in the *Parcin*, or to the Cinnabar Balls in the same Chapter, or those appointed for the Staggers; which being continued for some time, will, no doubt, prevent Blindness: But if the *Retina* be so much compress'd as to lose all Sensation, the Case will be very desperate; for this sort of Blindness is seldom or never to be cured, but in its Infancy.

C H A P. XXV.

Of a Cold and Morfounding.

AFTER we have said so much in another *A Cold and Im-* Place concerning Fevers and Surfeits, we *perfect Fever.* need not take up much of the Reader's Time, in explaining the Nature of a Cold; since a Cold, as such, is no other than an imperfect Fever, and affects the Body in many Circumstances, as we have describ'd a Surfeit, only we thought it might not be improper to transpose it to this Place, because the Diseases of the Lungs, which we are to treat of in the following Chapters, though they often proceed from divers other Causes, yet they have a greater Dependency on a Cold than any other Distemper, as a Cold more especially affects the Lungs and the Part appertaining to them.

Now the Causes of a Cold are sufficiently *The Cause of* known to every one, being produc'd of all *Colds.* those things that cause a sudden Stagnation of the Pores; as when a Horse has been very much heated, and in this Condition expos'd to the sharp Air, without being at some Pains to cool him by degrees, and neglecting to rub off the Sweat, which strikes a Chilliness and Damp over the whole Body;

permitting a Horse to drink cold Water, while extremely hot; exposing a Horse that is tender and well kept to the Night Air: And sometimes many of the same Symptoms will happen when the Air is too much rarify'd and thin; for by that means its Pressure is not sufficient to force the Blood through the small Vessels of the Lungs, but will occasion a Stagnation there, and cause a Difficulty of Breathing, which will be accompanied with a Cough: and this sort, if it is not speedily cured, is the most dangerous, both as to its immediate and future Effects.

The Signs. The Signs are, Dulness, want of Appetite, a Cough, and running at the Nose; and sometimes it affects the Eyes, as we have already observ'd; and in most young Horses, causes Swellings about the Kernels of the Throat.

The Cough proceeds from a Distention of the Lungs, which streightens the Passages of Respiration, or it proceeds from a Defluxion of Rheum, from the Kernels of the Windpipe being then relax'd and distended; and when the Discharges from thence happen to be pretty considerable, it is by Farriers said to be a wet Cough; but when a Horse coughs without any great Matter of Discharge, it is then call'd a dry Cough, and is look'd upon as an ill Prognostick.

But a dry Cough is not always a bad Prognostick, as they imagine; for in the beginning of a Cold it often happens only from the Oppression of the Lungs, when the small Vessels, towards their Extremities, are over-charg'd, insomuch that the Air which a Horse draws in, is not able to penetrate through their whole Substance, so as to enter into all the little Bladders, but is suddenly repuls'd back again, and occasions him often to cough, while it meets with a portion to the same Air, before the Action of Respiration is begun; and we may oftentimes observe the same Symptom in Horses that are narrow chested, upon a very slight Cold; because in that Case, when the Blood-vessels are full, they have not room for a sufficient Elevation. But if a dry, husky Cough continue after the common Symptoms of a Cold are past, it is then to be very much suspected as a thing that will be of ill Consequence, as being the Fore-runner of a Consumption. But we shall shew the Reason of this in its proper Place; and in the mean time proceed to the Cure of a Cold, while it is unattended with any other Accidents than what are common.

The

The first thing to be done in a Cold, is to take a pretty large quantity of Blood from the Neck-vein, if the Horse is otherwise in good Case, and full of Flesh; but if he be low and poor, the loss of too much Blood may be prejudicial to him: But yet as all Colds, for the most part, affect the Lungs more or less, Blood ought in the beginning to be drawn away, tho' the quantity be but small; for here it is necessary, as in all other Cases where the Blood is too viscid, to give it more room in the Vessels.

If he labours and breathes with Difficulty, and at some times appears to be in much Pain, he may be bled a second time; and if his Blood looks of a florid red Colour, and has little or no Serum in it, and the Pain still continues, after the space of twelve Hours he may be bled a third time, to prevent an Imposthumation in his Lungs, or sudden Death; for it sometimes happens, that Horses are seiz'd in the beginning of a Cold with a Pleurisy, or *Peripneumony*, when no one near them knows the Cause of their Agony.

After Bleeding, if your Horse be costive, as is not uncommon in the beginning of a Cold, let him have the following Clyster.

“ Take Mallows and Marsh-mallows, of each three Handfuls; Mercury and Pellitory, of each one Handful;
 “ boil them for the Space of half an Hour in three Quarts of Water, and to the strained Decoction add half a Pound of Treacle, coarse Sugar, or Honey, and the same quantity of Oil or Butter, to be injected Blood-warm,
 “ and repeated as often as needful.

If a Lax or Looseness happens, it must not be too soon stopp'd, for sometimes the Disease terminates that way, especially if he has been surfeited; but if it continues too long, and causes sore and painful Gripes, it must then be treated according to the Method laid down for the Cure of that kind of looseness which is accompanied with a Colick.

To recover lost Appetite, which is a Symptom that attends every violent Cold, he must be exercis'd every Day more or less with chewing Balls, and kept to very moderate Feeding: The following *Arman* may also be made use of, which I can promise to be much the best of its Kind.

“ Take Honey of Roses half a Pound, the inside of a white Manchet finely crumbled, Cinnamon and Nutmegs of each an Ounce, Gallangal, Zedoary, and Calamus Aromaticus, of each an Ounce and a half. Let all these be made into a fine Powder, and incorporated with the
 “ Honey

" Honey of Roses, adding Syrup of Lemons, as much as
 " is necessary to make it into the Consistency of a thin
 " PASTE ; " and let him now and then have the quantity
 of a Walnut given him upon the End of a Bull's Pizzle,
 first soak'd in Water, and then beat soft; his Tongue must
 be pull'd to one side, and the Pizzle put up to the Back-
 part of his Mouth, letting him chew upon it afterwards.

For his Cough, let the following Drench be given him.

" Take Hyssop-water one Pint, dissolve in it four Oun-
 " ces of the Juice of Liquorice, otherwise called *Spanish-*
 " *Juice*, and two Ounces of brown Sugar-candy, take the
 " Roots of Elicampain, round or long Birthwort, and
 " Gentian, of each half an Ounce ; the Seeds of Fœnugreek
 " and Lintseed, of each three Drams ; Gallangal and Cin-
 " namon, of each two Drams. Let all these be made in-
 " to a fine Powder, and mix'd with the Hyssop-water and
 " Liquorice, after which add to it a Pint of White-wine
 " or Ale, and give it in a Horn.

Let this be repeated once a Day until the Cold be
 loosen'd, and that your Horse begins to feed plentifully,
 and his Eyes look brisk and lively, and the Matter from
 his Nose (if there be a running from thence) grows thick
 and well digested. But the following will be still more
 efficacious, and, indeed, inferior to none that can be given
 in this Case.

" Take three or four heads of white Poppies, two Hand-
 " fuls of Coltsfoot, four Ounces of Lintseed, boil them in
 " three Pints of Water till one is consum'd, add to it four
 " Ounces of the Juice of Liquorice, dissolved in the Hyf-
 " sop-water, as above directed, adding also the Pow-
 " ders as in the former Prescription.

The following Powder out of *Solleysell* may be made
 and us'd upon Occasion, which I believe will not be the
 less acceptable, that it has all the Ingredients of the Dia-
 pente in it.

" Take Bay-berries, Gentian, round Birthwort, Myrrh,
 " Flower-de-luce, Shavings of Hartshorn, and Elicam-
 " pain, of each four Ounces ; Zedoary, Cummin-seeds,
 " Aniseeds, and Savin, of each two Ounces ; Cinnamon
 " half an Ounce, Cloves two Drams, Flowers of Corn-
 " Poppies dry'd two Ounces." The Dose is two Ounces
 infus'd all Night in Wine.

The celebrated Horse-Balls of *Markham* may also be
 given, one in a Morning, for several Days together. They
 are thus made: " Take

“ Take Aniseeds, Cummin-seeds, Fœnu- **Markham's**
 “ greek, Carthamus-seeds, Elicampain- **Balls.**
 “ Root, Flower of Brimstone, and brown
 “ Sugar-candy, of each two Ounces, beaten and searced
 “ very fine. Then take an Ounce of the Juice of Liquo-
 “ rice, and dissolve it in half a Pint of White-wine, which
 “ done, rake three Ounces of the Syrup of Coltsfoot, of
 “ Sallet Oil and Honey, of each half a Pint. Let these
 “ be mix'd with the former, and with as much Wheat-
 “ flower as will bind and knit them all together, work
 “ them into a stiff Paste, and make them into Balls as big
 “ as a large *French* Walnut, or as big as a Hen's Egg.

Some use, instead of the Syrup of Coltsfoot, two Ounces of the Coltsfoot dry'd and made into Powder; others add an Ounce of the Chymical Oil of Aniseeds, which is very proper, as Horses are much subject to Wind and Flatulencies in their Bowels; and many other Alterations I have seen which are not material.

The chief Vertue of these Balls consists in *Their Vertue.* their mollifying and softening Quality, where- by they take off from the Acrimony and Sharpness of the Rheums, which occasion tickling Coughs, by which means they also fatten some Horses. But if it should, upon any Occasion, be necessary to make them more deterfive and cleansing, the quantity of the Flower of Brimstone may be increas'd, and the Honey proportionably, or there may be added to them the Powder of the Roots of Smallage, dry'd Hyssop, and Horse-mint, the Tops of Fir, and the like, which will make them a most excellent and safe Scouring for Horses, by breaking those Viscidities which obstruct the small Passages of the Lungs, the Liver, and other principal Bowels, causing Purfiness and difficulty of Breathing.

But in extemporaneous, or off-hand Applications, those Cleansers which are sufficiently known to all Farriers, *viz.* Garlick, Onions, Brimstone, Honey, *Barbadoes-Tar*, or common Tar, when rightly adjusted, and when a Horse is not overmuch cloy'd with them, may be of Service; and as they are exceeding powerful in their Operation, they often succeed, and that very soon.

But in the Cure of a Cold, nothing is more material than a due Care of a Horse's Feeding and Dressing, and likewise of his Exercise; and therefore besides Moderation in his Feeding, which we have already observ'd to be necessary, whatever Food is given him ought to be somewhat open-
 ing,

ing, as scalded Bran, or Barley instead of Oats; and in his Water those things that are diluting, and will promote the Discharges by Sweat and Urine, as the *Sal Polychrestum*, *Sal Prunella*, crude Tartar, and crude *Sal Armoniack*, already describ'd in putrid and malignant Fevers; for a violent Cold comes the nearest to Fevers of a malignant Kind, and is often the Fore-runner of such Fevers, as we may sometimes observe; and therefore all those things are necessary that help to carry off the grosser Parts of the Serum, for by that means a due and uniform Circulation of the Blood is the sooner recovered.

And this is also greatly forwarded by moderate Exercise, &c. by rubbing and dressing; and if you find your Horse of himself inclinable to Sweat, which often happens in the beginning of a Cold: or if he lies under a heavy Oppression, those Discharges may be then easily promoted by warm Cloathing; and, if necessary, may be yet more forwarded by giving him an Ounce of Venice-Treacle in a Pint of White-wine or Treacle-water. And lastly,

To prevent the running at the Nose turning to the Glanders.

If the running at the Nose be likely to continue too long after the other Symptoms are in a great measure gone off, let him have once a Day, for some time, a Decoction made with three or four handfuls of Red-rose Leaves, an Ounce of Pomegranate-bark, and an Ounce and a half of Dialcordium dissolv'd in it, and let his Nose be often syring'd with some of the same Decoction, or with Honey of Roses, which is much the same; and by following this Method, you may prevent it turning to the Glanders, unless your Horse be also consumptive, in which Case it will be very hard to put a Stop to it.

CHAP. XXVI.

Of Chest-foundering, &c.

*Chest-founder-
ing bears an
Affinity to a
Pleurisy.*

Inflammation of the Lungs or *Pleura*, accompanied with Pain and difficulty of breathing.

The Cause.

THE Disease that goes under this Denomination in Horses, comes the nearest of any to that which in a human Body is called a Pleurisy, or *Peripneumonia*, which is an Inflammation of the Lungs or *Pleura*, accompanied with Pain and difficulty of breathing. The Cause is from all the same things that produce a Cold, as exposing a Horse when he

he is hot to the cold Air, riding him at that time into cold Water, or letting him have cold Water to drink; and therefore it is sometimes introduc'd by a Cold.

Sometimes it proceeds from a Horse's eating unwholsome Hay, and bad Provinder, or his Feeding on cold frozen Grass in Winter, especially if he has not been us'd to it; but the most common and ordinary Cause, is the over-riding a foul-body'd Horse that has not been accusom'd to Exercise, for then his Blood being agitated, and put into a more than ordinary degree of Motion, passes forward into the Lungs or Pleura in great Quantity, and very much distends the small Vessels there, but because of its Viscidity it suddenly stagnates, and occasions Pain and Inflammation, with the other Symptoms we have already mention'd. And therefore young Horses, as their Bodies are most apt to be foul, and their Blood of unequal Fluidity, are the most liable to Chest-Foundering.

The Signs are, an excessive heaving of the Flanks, starting with Pain as often as he offers to move; when violent, it is always accompanied with a Fever; but as the Fever is only an Effect of the Inflammation, it goes off as soon as that is removed.

The Signs.

But a Horse is often said to be Chest-founder'd in his Body, when there are no visible Symptoms of much Pain, only an Oppression; but as this even proceeds from the same Causes, and as it produces many of the same Effects, as breaking the Horse's Wind, melting his Grease, and all other Diseases that follow such an Oppression on the Lungs, and other Bowels, it ought, in the Cure, to be treated much after the same manner as if there was Pain and Inflammation, only that Bleeding may be more sparingly us'd; for when there is such an Oppression that a Horse cannot breathe, but is like to be suffocated, then Bleeding must be repeated, as the lesser Evil.

The Cure of Chest-foundering, and founderings of the Body.

And in this Case I would always recommend opening the Flank-veins, or those of the inside of the Thigh, to make a Revulsion, which will be found much more safe, and answer the End much better than Bleeding in the Neck or Plat-veins, as is usually practis'd in such Cases, for this often causes a greater Derivation upon the Lungs or Pleura.

And because a Chest-founder'd Horse has oftentimes a great inward Heat and Costiveness, especially in the beginning, he ought to have an emollient Clyster given him, as that

that inserted in the preceding Chapter for a Cold, which may be repeated as often as there is occasion; and if there be no Symptoms of Pain, but only Heaviness and Oppression, which does not hinder a Horse from lying down, nor keep him altogether from Feeding, the Method we have laid down for the Cure of a Surfeit is to be follow'd. And if he be also addicted to a Cough, the Remedies for that Intention are likewise to be made use of.

But if you find him in Pain, and full of Agony, after he has been bled, and had a Clyster injected, let the following Drench be given him to promote Sweat.

“ Take Milk-water one Pint and a half, Treacle-water
 “ half a Pint, dissolve in the Treacle-water six Grains of
 “ Camphire, afterwards add an Ounce and a half of *Venice-*
 “ *Treacle*, or Mithridate, or two Ounces of *London-Trea-*
 “ *cle*, mix all together, and give it your Horse thro' a Horn.

Afterwards let him be walk'd a little, and well cloath'd; and when he is inclinable to drink, let him have warm Water strew'd with Oatmeal.

When those things are done, let one of the following Balls be given him twice a Day, one in the Morning, and another in the Afternoon, an Hour before watering time.

“ Take Conserve of Red-roses two Ounces, *Sperma*
 “ *Ceti* one Ounce, Linseed and Fœnugreek-seeds in Pow-
 “ der of each an Ounce and a half, Liquorice Powder
 “ two Ounces. Let these be made into four Balls, with
 “ sweet Oil, or Oil of sweet Almonds, as is sufficient.

The Use of these must be continued for several Days; and when the violent Symptoms are abated, he may, by degrees, be inur'd to Exercise, which, with a cleansing Diet, will perfect the Cure.

C H A P. XXVII.

Of Purpse, Broken-winded, and Consumptive Cases.

IT is sufficiently known to any one who is the least acquainted with the Animal Oeconomy, that whatever causes an overgreat Influx of Blood into the Lungs, and other Parts administering to Respiration, will occasion a heaving of the Flanks, and difficulty of Breathing; and therefore there are very few Diseases of any kind, but what are accom-
 panied

panied more or less with those Symptoms. But the Diseases that come under our present Consideration, are such as have their chief and principal Seat in the Lungs, proceeding from an Ulcer, or some inward Wasting, whereby the small Vessels are wore and abraded by the acrimony and sharpness of the common Discharges, or from some obstinate Stagnation, hindring the Air from penetrating, so as to elevate and lift them up in the Action of Respiration, or when there is rough mucilaginous Matter separated in the Branches of the Windpipe, for all such things will occasion a very great Disturbance in the Flanks of a Horse; and when a Horse has any of those Infirmities upon him, he may justly be term'd purfise, or broken-winded.

Consumptive and Broken-winded Cases, proceed from some Disorder of the Lungs, &c.

The Cause is from Colds, Surfeits, and other Diseases that have never been thoroughly carry'd off, but chiefly obstinate Colds, for by them the Lungs are in a more especial manner affected; and therefore whatever brings on a Cold, or other Diseases affecting the Lungs, may be look'd upon as the *Procatartick*, or remote Cause of broken Wind, or Purfiness. The eating of unwholsome Food, and feeding in a bad Air, also bring on these Disorders: But many Horses have their Wind broke by ill usage, as hard Riding when they are full, for by that means their Blood is thrown into the Lungs, with so much impetuosity, and in such quantity, that it suddenly causes Foundering and Inflammation, which is oftentimes followed with an inward Abscess, or Ulcer, which proves incurable.

Caus'd by Colds, and other Diseases affecting the Breast, and from hard Riding.

The common and usual Signs are, a heaving and beating of the Flanks, sometimes a wheezing and rattling; and in some desperate Cases, a swelling of the Kernels about the Throat, and a glander'd running at the Nose.

The Signs.

But here it is to be observ'd, that some Horses may be purfise and short-winded, and exhibit several of these abovemention'd Signs, and yet their Case not dangerous, nor properly to come under the Denomination of a broken Wind, or Consumption; for some Horses are naturally thick-winded, especially those that are great and foul Feed-

Several Cases wherein a Horse may be purfise, and exhibit other Signs of a broken Wind, and yet be free from that Disorder.

ers,

ers, for by that means their Blood is, for the most part, gross and viscid, and passes with some difficulty thro' the small Vessels of the Lungs, which being also frequently press'd by a full Stomach, will not only occasion Purfiveness, but sometimes a Cough; yet as such are very apt to turn broken-winded, they should be kept to spare and clean Feeding, or have constant and daily Exercise.

Most young Horses, that have been habituated to Ease, will blow upon the least Exercise, especially if they be fat; and that proceeds also from a thick and plentiful Blood; but it is very well known, that if such Horses are not over-labour'd while in this Condition, but by degrees harden'd and inur'd to Exercise, those Symptoms will soon vanish; and if the Helps of Physick are requir'd, their Disorders may speedily be remov'd by Bleeding, and very moderate Scouring.

Horses that are poor, and in a low Condition, when they are exercised beyond their Strength and Feeding, will also heave and labour, as if they were broken-winded; as also those that have been sick, or lie under some Distemper that wastes their vital Spirits, tho' their Lungs are perfectly sound; or if a Horse has had any immoderate Discharges by Blood or Dung, any of those will cause a Horse to heave and labour for Breath, as if he was broken-winded: But as in all these Cases, this seeming Oppression proceeds only from a scarcity of Blood and Spirits, there not being what is sufficient to actuate and elevate the Lungs and Chest, the Symptoms wear off by good Care and Feeding.

And, lastly, we may observe some Horses, that have no inward Infirmary, blow and wheeze, from an Imperfection in the Passages between the Mouth and Nose, which happens the more readily to Horses, as they draw in and expel their Breath chiefly at the Nose; but that Imperfection is easily distinguish'd, for albeit his Flanks move like a broken-winded Horse, while he is in Action, yet as soon as he is stopp'd, that Agitation goes off, and nothing farther is to be taken notice of in his breathing but what is natural. And there are some Horses short-winded from the narrowness of their Chest, which is plainly discernable as often as they are put to gallop, or to any Labour. But where that Defect proceeds from some Imperfection of the Lungs, it is easily enough distinguish'd; because in all Cases where the Lungs are hurt, tho' a Horse's Flanks will

will heave and work most impetuously upon Exercise, yet even when he stands in the Stable, there is no interval free from that Agitation, but he still labours more or less.

Now a Horse is said to have his Wind touch'd or broke, according to the nature and degree of Efficacy in the Distemper; for some Horses will last a great while with Infirmities of this kind, and continue at the same pangs, and do abundance of service, and yet be absolutely incurable; some waste and decline gradually, and others very suddenly; all which we shall endeavour to explain.

The Disorders that affect the Wind of a Horse, yet not so as to cause a sudden Waste and Decay, are chiefly of two Kinds.

In the first, tho' a Horse has no Intervals free from a working and agitation of his Flanks, yet if he coughs but seldom, and has no Moisture proceeding from his Nose, nor does waste in his Body, it is a Sign that his Infirmary proceeds from some obstinate Obstructions in the small Vessels of the Lungs; or from chalky Matter ingender'd in them, which hinders the Air from passing into all the little Air-bladders, so that they cannot be fully inflated and distended, or it may be caus'd by some Adhesion to the *Pleura* and Ribs, for then the Lungs cannot be sufficiently depress'd; and a Horse in this Condition must have his Nostrils frequently contracted in sucking in the Air, but will never breathe out freely.

The next is different from the former, and shews itself by other distinguishing Signs; for, as in the first Case, a Horse seldom coughs but when in Exercise, or when his Stomach and Guts are full; in the last, a Horse will cough pretty often, but especially upon every slight Cold, and at the same time is frequently troubled with a wheezing and rattling in his Pipes; all which proceeds from a thick mucilaginous Matter sticking in the Branches of the Wind-pipe, that not only must occasion frequent coughing, but also cause a constant heaving and working of the Flanks.

The Disorders that cause a total Decay, and which may not improperly be said to constitute a Consumption, are also reducible to two Kinds: The first is, when there is a Waste, occasion'd by an Over-relaxation in the glandulous Parts, and a too great Discharge of the Juices, which

*What Horses
are properly de-
fective in their
Wind.*

which are only allotted to keep the Lungs moist; and the second is, when there is an Ulcer form'd in them. And these are distinguishable from the former in this, that wherever there is a Decay, either by an Ulcer, or by such a Waste as we have been speaking of, a Horse will be able to bear no manner of Exercise without a sinking and lowness of his Spirits; and as his Distemper continues, loses Flesh, turns flabby, and is subject to hestick Disorders; whereas in the other Cases, a Horse will go through a Journey, or perform any other Exercise, if he be well us'd, without any considerable Infirmary, excepting that of his Flanks. However, as this Distinction is not so easily made in a beginning Consumption, while a Horse as yet retains some Strength and Vigour, his Cough ought therefore chiefly to be observ'd; for if that be short and vehement, or hollow and sounding, it is then very much to be doubted; for such Coughs as these generally attend where there is an Ulcer in the Lungs, or where there is a constant Waste, by the Superfluity of the common Discharges.

The Cure.

But we shall now proceed to the Cure. And first of all, as to those Defects in the Wind of a Horse, which are caus'd by obstinate Obstructions in the smallest Arteries, or chalky Matter, &c. though we do not propose any absolute Relief in such Cases, as we scarcely imagine any Thing can be exhibited, either to penetrate through hard and obstinate Obstructions, or dislodge foreign Matter ingender'd in the Lungs, or remove Adhesions, that perhaps have been begun before the Horse was foal'd; yet because a Horse may still be of service, notwithstanding these Infirmities, he should now and then have such Things given him as are gently opening, and are fit to lubricate all the Passages, and render them glib and easy; for which Purpose we recommend *Markham's* Balls, or any Composition of the like Ingredients: He may also sometimes have a little clean Antimony given him.

Feeding and Exercise.

But the principal thing to be observed, is the common Feeding and Exercise of such Horses; tho' I need not lay down any Method for it, because every one knows that the ordinary Rules are to be observ'd in the strictest Sense, with respect to broken-winded Horses. For albeit Exercise is as necessary to them as to any other, yet when it is in the least

im-

immoderate, or if it be given upon the Stomach, its Effects are, for the most part, very bad; and he that would give such an Horse much Water to drink, or keep his Rack constantly full, must be but a very young Groom: For when the Stomach is full of Hay or Water, as it lies upon a level with the Lungs in all such Creatures, it is the more apt to press forwards upon the Midriff, and hinder the Action of the Lungs, which cannot but be very troublesome in all Cases where they are any wise defective, as we daily observe in purfive and broken-winded Horses.

As to those Horses who have thick mucilaginous Matter obstructing the Pipes, and whose Lungs must also be very humid, and, as it were, more relaxed than natural; albeit the same Rules are to be observed in their Oeconomy of Diet and Exercise, as in the former Case; and though the same Remedies are also very proper, yet because this Distemper is sometimes more violent by Fits than at other times, and may therefore require Medicines of more powerful Efficacy; besides Blooding, which is necessary when the Oppression is upon him, the following Balls may be given with good Success.

“Take Galbanum and Gum Ammoniacum, of each a quarter of a Pound, Burdock-root half a Pound; first beat them well in a Mortar with two Ounces of the Flowers of Benjamin; then add by degrees sweet Oil, until you bring them into a Paste fit to be made into Balls, weighing two Ounces each. Let your Horse have two of these every Day, one in the Morning, and another in the Afternoon, two Hours before Water, keeping him ty'd up to the Rack all that while.

The following Balls may be also given with good Success, and may be easily procured at all Times, and almost in all Places.

“Take four Heads of Garlick, an Ounce of Horse-radish, stamp them in a Mortar; then add an Ounce and a half of Flour of Brimstone, and work them into a Mass with as much sweet Oil as is sufficient: Let these be made into two Balls, one to be taken in the Morning, and the other in the Afternoon, as above directed.

All the Remedies prescrib'd in a Cold, are also profitable and useful in this Case; and he may have sometimes scalded Barley instead of Oats; and nothing will be more proper than Barley boil'd in his Water with Lique-

rice, which he will drink with pleasure after he has been used to it.

We now proceed to the Cure of those Horses that are broken-winded and consumptive, which is only to be attempted in the beginning, and before they begin to fall much away; for Horses in this Condition will often eat to excess, and keep up their Body that way, if they are not put to daily Labour; and because a proper Diet in this Case is the most likely to succeed, he should, in the first place, be restricted from eating too much Hay, and from drinking too much Water, especially at a time, and that for the Reasons already alledg'd; for what he wants in this, may easily be made up another way.

Therefore let a Mixture of Linseed and Fenugreek Seeds be given him frequently in his Corn, and sometimes a few of the greater hot Seeds, as those of Fennel, Caraways, and Anise; in his Water may be boil'd three or four Handfuls of Barley, with a little Liquorice or Honey dissolved in it; but he must not be used constantly to the Liquorice, especially if he appear to waste very much, for it may in that Case prove over-deterfive.

He ought to have Exercise more or less every Day; but that must be moderate, and only when the Weather is clear; for by this means the toughness of the Blood is broke, and all the Discharges kept free and open.

If he be at any time seiz'd with an Oppression, and a more than ordinary Difficulty of Breathing, he ought to have a Vein opened in his Flank, or on the inside of the Thigh, from whence may be taken a small quantity of Blood; but this must be only gone about when there is an absolute Necessity for it.

The following Balls may be given, and continued with good Success, &c.

“ Take of Myrrh and Gum Benzoin of each four Ounces,
 “ Gum Arabick, the Roots of Orrice, round Birthwort,
 “ and the Shavings of Hartshorn or Ivory, of each two Ounces;
 “ Galangal and Zedoary of each an Ounce, Fennel-seeds,
 “ Cummin-seeds, and Fenugreek, of each an Ounce and a half:
 “ Let these be beat into a fine Powder, and made up into a stiff Paste
 “ with Honey, or Syrup of Colts-foot; then work into the whole
 “ an Ounce of the common Balsam of Sulphur, and let them be made into Balls
 “ the bigness of a large Walnut, whereof one is to be given
 “ every Morning and Afternoon, an Hour before watering
 “ time. All

All pectoral Herbs, as Maiden-hair, Colts-foot, Rocket, Scabious, and the like; all healing Balsams and Gums, and all the Remedies directed in this and the two preceeding Chapters, may be profitably given in broken-winded, consumptive Cases. But if your Horse, notwithstanding these Helps, turns poor and emaciate, low in his Spirits, and addicted to sweat, heaves to his Chine, and, with a reduplicated Motion, farts much and often, coughs and rattles, sounds hollow, and looks ghastly, with his Eyes pits fallen, you had better give him to the Crows, than be at the Expence of his keeping, for his future Services will never be answerable to it.

C H A P. XXVIII.

Of the Glanders and Mourning of the Chine.

THE *Glanders* is a Flux or running of corrupt Matter from the Nose of a Horse, which is of different Colours, white, yellow, green, or black, according to the degree of Malignity, or according as it has been of a long or short continuance.

Concerning the Nature and Cause of this Discharge, Authors have given very strange and unintelligible Accounts; some have ascrib'd it to the Lungs, some to the Spleen, some to the Liver and Kidneys, and some to the Brain; and when it has continued so long that the Matter becomes a blackish Colour, as is usual in its last Stage, they have imagin'd it to come from the Spine; and from thence have called it the *Mourning of the Chine*. Mr. *Snape*, in his Anatomy, has taken notice of the Farriers Mistakes concerning this Distemper; and altho' there are some things in his Account of it that are liable to Exception, yet because it is much more rational than any thing has hitherto been advanc'd upon the Subject; and likewise because the Authority of so eminent a Farrier may, no doubt, weigh with most Readers, we shall therefore give it a place here.

That Author having in the 5th Chapter of his 3d Book shewn the Use of the *Glandula pituitaria*, and that there can be no Discharge from it into the Nose, falls into the following Digression concerning the Gland-

Mr. Snape's Account of the Glanders and Mourning of the Chine.

ders; wherein he observes, that the Matter which issueth so plentifully out of the Noses of Horses that have got great Colds, or are glandered, falls not, as he himself had some time believed, from the Brain, but that it was separated from the arterial Blood by the Glands or Kernels of the upper part of the inside of the Nose, which, he says, is the more readily to be believed, because the other Glands are swell'd at the same time, and particularly those under the Horse's Jaws, that being one of the most certain Signs of a Horse's inclining to the Glanders. But he goes on in the following Words: " And this may serve to convict of Error
 " all our antient Authors, who did hold (and our Practitioners, who at this Day do hold) that the Glanders
 " proceed from a Defect and Wasting in the Brain; and
 " that all that snotty Matter comes from thence, which
 " issues out of the Nose; which, were it so, all the Brain
 " in the Horse's Head would not be sufficient to supply it
 " with Matter for three Days, according to the quantity I
 " have seen come from one in that time. It is therefore a
 " very false Opinion, taken up meerly upon guess, without inspecting into the Parts, that our Practitioners do
 " commonly entertain concerning this Disease.

" Neither is there such a Disease as the *Mourning of the Chine*, as they do to this Day hold; for it is impossible any Creature should continue so long alive, as till
 " all his Brain be so far wasted by this Disease, that it
 " comes to reach the Spinal Marrow without the Skull,
 " which is that, I suppose, they call the *Chine*.

" But this Disease, by them called the *Mourning of the Chine*, is distinguished into a different Disease from
 " the former, from the Matter's altering its Colour; for it
 " is generally observ'd, that after a Horse hath had this
 " Disease running on him for some time, the corrupt Matter or Snot, changes by degrees from an indifferent white
 " to a more dull Colour, inclining at first to a little reddish, but after a longer time, especially when a Horse
 " begins to grow towards his End, it will be very black,
 " and very nauseous both to see and smell.

" From this alteration of the Colour, as I have said, I do believe they give the Disease this proper and distinguishing Name of *Mourning of the Chine*; whereas it
 " is only a greater degree of one and the same Disease, in
 " which the *Chine* is not at all affected, at least no more
 " than any other Part of the Body, all of which languishes
 " away

“ away by this inveterate Distemper. By what Steps it
 “ proceeds, and how the Matter comes to alter its Colour,
 “ I will give you my Opinion.

“ The Mass of Blood being depraved, either by un-
 “ wholesome Food, or by great Colds, or, lastly, by In-
 “ fection from the Air, and from other Horses (for this
 “ Distemper is catching) this phlegmatick Matter collect-
 “ ed in it, is spued out of the ends of the Arteries in the
 “ upper part of the Nostrils, about the spongy Bones chief-
 “ ly; for in an Horse there is little of this Matter comes
 “ out of the Mouth, but it still descends by the Nostrils.
 “ This Humour, I say, distilling out of the Arteries by
 “ the spongy Bones continually, doth in process of time
 “ so fill the said Bones with filthy Matter, that, like a
 “ Sink or Chancel, being choaked up with Filth, there is
 “ not so free a Passage for the Humour, as when the Dis-
 “ ease first began; so that the Matter by that means is
 “ there stay'd, and by its continuance there, it acquires so
 “ bad a Quality, that it corrodes and cankers those Bones,
 “ and indeed ulcerates and gangrenes all the Passages of
 “ the Nostrils, till it has mortify'd and consum'd them (as
 “ happens sometimes to veneral Persons) and at length de-
 “ stroy'd the Beast; for indeed it is seldom or never cura-
 “ ble, when it is once come truly to be a Canker.

“ Now by the foulness of these Bones (as I have said)
 “ that Matter or Snot which doth descend by these Pas-
 “ sages (which indeed doth at length drivel down in a
 “ greater Quantity than before, by reason of the Passages
 “ being widen'd, from the Parts being gnawn asunder by
 “ the canker'd Humour) I say, that Matter or Snot,
 “ which descends after this, is of a contrary Colour to
 “ what it used to be; for it is become more black and
 “ waterish, mixed with a little red, and hath a very ill
 “ Smell; but this Alteration happens not from the Mat-
 “ ter's flowing from a new Part, but is caused by reason of
 “ the foulness of the Parts through which it passeth; for
 “ from thence it hath its Dye in a great degree.

“ Not but there is yet another Cause of it, which is the
 “ greater foulness of the Blood; for as the beginning of the
 “ Distemper did proceed from the Corruption or Depra-
 “ vation of the Blood, which was become, as it were, dege-
 “ nerate from its spirituous, balsamick, and volatilized Con-
 “ dition, into a flat and vapid State, like to dead Wine; so
 “ in process of time, for want of the Spirits to quicken

“ it, and cause the Fermentations necessary to the proper
 “ Places of the Body, where the excrementitious Parts of
 “ the Blood should be thrown off, such Excrements are
 “ collected every Day in a greater quantity, and acquire a
 “ greater Degree of Malignity, being hardly any Part of
 “ them discharged any other way but this, which is pre-
 “ ternatural, and most times becomes destructive to the
 “ Beast, after the Disease hath arriv'd to the Height.

*Some further
 Observations
 concerning the
 Glanders, &c.*

But we shall here subjoin, to what Mr. *Snape* has said concerning the Glanders, some few Considerations that will make this Matter yet more intelligible; and in order thereunto, the Reader would do well to consider, that an Ulcer, or an Abscess form'd in any part, from whence there may constantly be deriv'd a very large Discharge of Matter, will soon bring the Body into a weak and debilitated State, by depriving it of its necessary Sustenance and Support; and this we find by daily Observation, both in human Bodies, and in brute Creatures.

Nor does this happen by reason of the quantity of Matter alone that issues from those Parts, but as it causes an over-great Determination of the Blood towards the ulcerated Part, which lessens the common and ordinary Discharges by the Glands and Pores of the Body; for by this means the Blood is rendered more viscid, and unapt to Motion, and (as the abovementioned Author observes) it loses its Spirits; and therefore it very readily stagnates in the soft Parts, and where the Blood-vessels are very small, as in the Lungs, Kidneys, &c. forming Ulcers in them also. And for this Reason it very often falls out, that glandered Horses turn consumptive, and consumptive Horses turn glandered. And this has brought Farriers into different Opinions concerning the Glanders, because most glandered Horses, after they were opened, have been found defective in one or more of their inwards.

But to understand the Nature of this Distemper aright, it will be necessary to consider, that it takes its beginning, and has its chief Seat, in a little soft spongy Flesh, which is easily dilated by the least Influx of Blood; and therefore we sometimes observe a Running at the Nose in some Horses from a very slight Cold; but when this Substance happens to be very much relaxed, any one may, without much Difficulty, imagine how the Running will be apt to increase,

But

But that this may yet be the more readily apprehended, we shall consider it in all its different Stages. *The Glanders consider'd in all its Stages.* *First*, As it is a simple Running; *Secondly*, As it becomes an Ulcer: And under this Head it may be also considered in a twofold Respect, as it is an Ulcer in the fleshy Parts, and as it becomes an Ulcer in the bony Parts. And though this be only an advanced Degree of the same Disease, yet we have made this Distinction in Compliance with those, who, in its last Stage, have call'd it the *Mourning of the Chine*.

Now this Disease at first is no other than a Superfluity of Matter proceeding from the soft spongy Flesh in the upper Part of the Nose, and that it is caused by an over-great Plenty of Blood from the Arteries into those Parts; for by this means that glandulous Flesh becomes enlarged: And whereas in its natural State there is nothing separated from it but a little Moisture, which in Horses is hardly perceivable, and serves chiefly to refresh those Parts which are the Organs of Smelling; yet now that the Glands are dilated and swell'd, there is a considerable quantity of Matter continually discharged from their excretory Ducts.

And whether this proceed from a Cold, or from the Strangles, or from infection, or an inward Waste and Decay, it will soon degenerate into an Ulcer; and the Matter being pent up with those Passages, must easily acquire a more than ordinary degree of Putrefaction, whereby it turns corrosive, wastes and destroys the Vessels; so that instead of that superfluous Discharge, which was in the beginning of the Distemper, from the common Passages of the Gland, the Matter now proceeds from the ruptur'd and torn Vessels; and therefore if the Horse lives until the Glanders turn to an Ulcer, the Matter is frequently streaked with Blood.

But in the last Stage of this Distemper, the intolerable Stench, and a discolour'd Corruption, denotes the Bones to be ulcerated, as well as the Flesh; and how this may happen, is not difficult to be conceived, especially if it be remembered, that the Bone, in which the spongy Flesh is seated, is also it self very spongy. Now as this Bone is open and full of Pores, it must easily become a fit Receptacle for a more than ordinary quantity of the common Juices; and when these are perpetually falling into it, changing its Nature from that of a Bone, it turns into a *Caries*, and becomes like dead mortify'd Flesh, so that all the Matter that comes from thence is of an ashy or black Colour; and when

it has been of some Continuance, it also wastes and destroys the Passages of the Nose, as Mr. *Snape* has observ'd.

No wonder then that the Cure of the Glanders becomes difficult, as it is thus circumstanced; for besides the inward Waste and Decay, which is sometimes the Cause of it, and is for the most part, or always the Effect of it, as it is seated out of the Reach of proper Applications, and in such Parts as we have observed to be of a very loose and open Structure; therefore the least Running from the Nose of a Horse, unless he be otherwise in good Order, is very much to be feared; but especially if it be remembred what we have elsewhere taken notice of concerning the dependent Position of a Horse's Head, whereby he is render'd liable to many sudden Disorders, as the Vertigo, Staggers, &c. and to frequent Diseases of the Eyes; we may upon the same footing easily imagine how he may also become glandered, if once the Blood happens to be determin'd in an over-great quantity into the soft and glandulous Substances about the Nose and Throat.

But although the Cure of the Glanders is hardly to be attempted in its last Stage, or even when it is turn'd to an Ulcer, or indeed in any Circumstance, when a Horse is inclinable to be Consumptive; yet that we may not be thought wanting of those Helps that are necessary for so common a Disease, we shall lay down such Rules as are to be observ'd, and prescribe such Remedies as are the most appropriated to every Degree of it.

The Cure. And therefore in the beginning, if the Running be simple, such as may proceed from a Cold, and continues too long, if the Horse has Strength, he may be purged once or twice, or oftener, with the following Drench.

" Take the Roots of common Burdock sliced one
" Handful, of Guaiacum and Sassafras Wood, of each
" half a Pound; Monk's Rhubarb four Ounces, *Senna* one
" Ounce, Jalap bruised two Ounces, sweet Fennel-seeds or
" Aniseeds an Ounce and a half. Boil the Burdock-
" Roots and the Woods in two Quarts of Water for the
" Space of a whole Hour; after which put in the other
" Ingredients; and to a Quart of the strained Decoction
" add a Quarter of a Pound of Honey: Let this be given
" in the Morning with the usual Precautions; and let his
" Water also be warm, and sweetned with Honey.

" Take

“ Take Jalap and Aloes in fine Powder of each ten
 “ Drams, Salt of Tartar half a Dram ; make them into
 “ two Balls, with a sufficient Quantity of Wheat-flour and
 “ Butter, to be given as the former.

“ After the Operation of the Physick, let him have a
 “ Decoction of the Red-Rose-Leaves, with an Ounce and
 “ an half or two Ounces of *Diascordium* dissolved in it,
 “ which will greatly contribute to abate the running at
 “ the Nose ; and while it is only in this first Stage, a little
 “ of the same Decoction, without the *Diascordium*, but
 “ sweetned with Honey, will be sufficient to inject into
 “ the Nose.

And because all those things that are proper to promote a Breathing thro’ the Pores, will also conduce to the same End, therefore one Pound of Guaiacum, half a Pound of Sassafras, with four Ounces of Liquorice, may be boil’d in Water for his ordinary Drink.

But if you cannot bring him to drink his Decoction, the Woods may be given in the way *Solleysell* uses them for the Farcin, which is thus.

“ Infuse ten Ounces of Guaiacum-wood, or for want of
 “ that, that of Box-wood, in nine Pints of Water ; and
 “ after they have stood twelve Hours in Infusion in hot
 “ Ashes, boil them with a gentle Heat in a covered Vessel,
 “ to the Consumption of a third Part of the Water, then
 “ strain out the Liquor, and give your Horse a Quart a
 “ Day for eight Days together, keeping him bridled three
 “ Hours before, and three Hours after every Dose.

But there is no need to keep a Horse so long bridled after this Decoction, but he may be fed within an Hour, or an Hour and half ; and before his Corn he may drink Water, wherein Liquorice has been boil’d, or Honey dissolv’d.

If the Running does not abate, or if you observe the Kernels under his Jaws to be very hard and swell’d, you may apply the following Cataplasim.

“ Take half a Pound of Linseed, four Ounces of the
 “ Seeds of Fœnugreek, reduce them to fine Powder, and
 “ boil them over a clear Fire in a Quart of Vinegar, to the
 “ Consistence of a Poultice, keeping constantly stirring,
 “ and when it begins to thicken, add half a Pound of Oint-
 “ ment of Marsh-mallows, and apply it hot to the Ker-
 “ nels, covering the Part with a Lamb’s-Skin.

This must be done for several Days ; and if the Horse be not far gone in the Distemper, it will either dissolve the
 Kernels

*Breaking of the
Kernels under
the Jaws some-
times necessary*

Kernels or break them, which will be of very great Service, as the swelling in those Parts is occasion'd by a sort of Sympathy, and proceeds from the same Cause that brings on the Glanders; and as they must therefore constantly help to feed the Distemper. But if they cannot be remov'd by emollient or suppurative Medicines, I should think it might conduce very much to the Horse's safety to open them with a Caustick, it being much easier to heal an Ulcer in those Parts than in the Nose; neither can it be attended with such bad Consequences as when those Kernels are extirpated, as is sometimes practis'd; because in the Operation some Part of them is generally left behind, from whence Nature supplies that Want by new, but imperfect ones, which are more liable to Swelling and Inflammation than the first; so that instead of giving Relief, it often makes the Distemper worse.

But if those Swellings continue with the other Symptoms, the Horse ought to be rowel'd, unless you perceive him to waste, and in that Case any kind of Issue will only help to shorten his Days.

And here, as concerning Roweling, that will be of greatest Service when made on the inside of the Thigh, in order to make a Revulsion; and this Method of Roweling is supported by the same reasons as Bleeding in the hind Parts for Diseases of the Head; for as we find the Blood to move in a more than ordinary quantity towards the Head of a Horse that is glander'd, therefore a Vent to the Humours backwards, at so great a distance, will, no doubt, be of service, for by that means the Blood will be brought to flow more towards the hind Parts than before such an Issue was made, and a check will be thereby put to the Distemper.

*Injectiōns to be
us'd.*

But when the Parts, from whence the glander'd Running proceeds, are become ulcerated, which may be known by the Clamminess and Viscidity of the Matter, and by its sticking to the inside of the Nostrils like Paste; in this Case Injections must be made Use of, and such as are of the greatest Efficacy, and for that Purpose the Farrier ought to provide a Syringe, with a Pipe that is of a convenient Length. But first of all it will be necessary to purge and cleanse the Horse's Nose, by burning Brimstone or *Auripigmentum* under it, which may be sent up the Nostrils through the small End of a Funnel; and when he has sneez'd, and thrown out a plentiful deal of Matter, syringe his Nose with Brandy or red Wine, and

and then inject the blue Water prescrib'd in the 24th Chapter, to take off Films and Webs from the Eye, for nothing will conduce more to the cleansing and healing the ulcerated Parts. The Water made of the *Lapis Mirabilis*, in the 23d Chapter, will also conduce very much to the same Intention; or the following, which is also exceeding proper where there is a great Foulness.

“Take a Pint of White-wine, one Quart of Plantain-water, two Handfuls of Red-rose Leaves, half a Dram of Orpiment, one Dram of Verdegrease, Myrrh, and Aloes, of each a Dram and a half.”

The Rose Leaves are to be infus'd in the White-wine for the space of forty eight Hours, and then the Wine to be pour'd off and mix'd with the Plantain-water, and the Orpiment, Verdegrease, Myrrh, and Aloes, are to be beat to a fine Powder before they are mix'd with the Infusion.

A small quantity of the *Unguentum Egyptiacum*, dissolv'd before the Fire in a little Oil of Turpentine, may be also injected thro' a pretty large Pipe, which will also be very assistful in cleansing the ulcerated Parts.

If your Horse begins to waste, and turns flabby, and subject to hec tick Disorders, the Method laid down for such Cases is also to be follow'd; and if the Matter proceeding from the Nose denotes the Bones to be also ulcerated, by its Colour and rank Smell, you may then very justly begin to give over Hopes of his doing well, tho' I know there are several Farriers who have Assurance enough to boast of curing Horses in this Condition: However, his Nose ought to be syring'd with Brandy, or Spirit of Wine, and with those things above-recommended, that he may become as little noisome and offensive as possible.

A Tincture drawn from *Euphorbium* is extremely serviceable in all Cases where the Bones are foul and ulcerated; but yet we cannot recommend its Use in Injections; because when it is given that way, it must waste the Parts that are sound as well as

those that are putrify'd; and as it must be frequently used before it can produce the desir'd Effects, it may, no doubt, in so sensible a Part as the Nose, by its excessive stimulating Quality, derive a much greater Influx into the Parts, and, consequently, be the Cause of a greater Foulness; and for the same Reason, the cleansing the

Forcing Matter from the Nose with too much violence not very commendable.

Nose

Nose by Fumigation, with Brimstone and the like Combustibles, is not to be too often attempted; because any such violent Agitation will be apt to have the like Effect. I should, therefore, in most Cases of this Nature, recommend moderate Exercise, while the Horse has Strength, or the Use of Chewing-balls of *Assa Fœtida*, and other sœculent stinking Ingredients; for these will, for the most part, purge the Nose as much as is necessary; nor can such a Method easily be attended with any ill Consequence.

Of the Glanders which comes by Infection.

But it may, no doubt, be expected while I am upon this Cure, that I should make some Distinction between that kind of Glanders which comes by Infection, and that which proceeds only from the common and usual Causes; but as this cannot differ from that otherwise than in such Circumstances as may happen in different Constitutions, the Method of Cure, as to generals, must therefore be the same. But when the Glanders becomes like a Plague among Horses, as it sometimes happens, it is then only to be consider'd as a Symptom and a critical Discharge, which contributes to the Solution of some reigning Distemper. And in this Case, all those Things that we have recommended for the Cure of malignant or pestilential Fevers are proper, and ought to be made use of internally.

We shall conclude with the general Precaution given by all Farriers, and that is, to separate the Sound from the Unsound, though I believe this formidable Name of Infectiousness has been chiefly owing to the last mention'd Kind of Glanders, which is Epidemical; for I have known glander'd Horses stand some Months with those that have been sound, without any ill Effect; yet I must needs say, it would be pity to run any such Hazard with a good Horse, when it may be so easily avoided.

CH A P. XXIX.

Of the Strangles.

The Strangles ally'd to an external Quinsy.

THE Strangles, is a Swelling under the Throat between the two Jaw-bones, and seems not to differ very much from that which in a human Body is call'd the *Squinasy*, or *Quinsy*;

its Seat is not so much upon the Glands as on the Muscles, and therefore it comes the more readily to an Imposthumation; neither is there so much danger in Horses as in human Bodies, because in a true Quinsy the Muscles of the *Larynx*, or Throttle, are for the most part affected: whereas in the Strangles, the Muscles of the Tongue seem only to be touch'd, and therefore the Disease comes naturally to have an external or outward Discharge.

Young Horses are most liable to this Distemper, and for that Reason the *Sieur de Solleysell* compares it to the Small-pox, and has observ'd, that few Horses are troubled

*Compared to
the Small-pox
by Solleysell.*

with it above once, unless the Matter of the Strangles has been imperfectly cast off, and then he says it generally returns when they are about the Age of six, ten, or twelve; he farther takes notice, that the Matter sometimes casts itself off from the Limbs, and other Parts of the Body, especially from those Members that have been any ways hurt or weaken'd.

It has been a Loss to that Author, who was so diligent an Observer of all manner of Accidents incident to Horses, that he was not better acquainted with their inward Structure and Make, otherwise his Notices might have turn'd much more to his and the Reader's Account; for although this Distemper be near ally'd to an external Quinsy, as to its Situation, and also in many other respects; yet no doubt, as it mostly happens to young Horses, it may therefore, in its Effects, also bear an affinity to the Small-pox.

For as the Blood of young Horses may reasonably enough be suppos'd unequally fluid, having not as yet been sufficiently comminuted by frequent Circulations; therefore, while they are in this imperfect State, they are render'd liable to Diseases, as we have already taken notice in another Place; and when these happen, they fuse and melt the Blood, or purify it from its Viscidities and grosser Parts, by some Discharges, which are answerable to the Small-pox in human Bodies. But as the Small-pox breaks out in little Pustules all over the Skin, wherever the Vessels are the smallest, and where the Blood must of consequence be most apt to stagnate; yet because the Blood-vessels in Horses are considerably thicker and stronger than in human Bodies, therefore these Impurities cannot so readily be discharg'd in that manner, but fall out into Biles and Swellings in

in all those Parts that are the weakest, or the most dependent ; and this may, no doubt, be the Reason why Horses are more subject to the Strangles, and other Impostumations, while they are Colts, than when they are grown up to a more mature State.

But tho' this may be the true Reason of that Disease, and therefore that it may require some different, or, at least, some necessary Helps, which are not altogether needful in common Biles and Inflammations, yet the Cure must be much the same as to Universals.

The Cure.

And therefore, if the Swelling has a tendency forwards between the Jaws (as is most common to Horses, proceeding from the dependent Situation of their Head) so that the Passages of the Throat are not in danger of being choak'd up by it, the safest way is to ripen it, and bring it to Suppuration, and for that End the most simple easy Methods may first be put in practice, as anointing the Parts with Ointment of Marsh-mallows, and covering them up warm ; for Nature oftentimes gives the greatest Assistance in such Diseases. Or you may take Oil of Bays and fresh Butter, of each a like quantity, Ointment of Marsh-mallows the weight of both ; or the Poultrice in the preceeding Chapter may be apply'd warm twice a Day.

After the Swellings are ripe, and that you perceive Matter within them, but that they don't break, which perhaps may be hinder'd by the thickness of the Skin, you may open them with a Lancet ; but if they do not ripen as you could wish, you had better make use of a hot Iron, and scar the outside pretty deep ; but whether you open them by Incision, or by the Application of the Iron, you must be sure to make your Operation in the lowermost dependent Part, for by that means the Matter will the more easily run off ; whereas if you open them in the upper part, if they happen to be large, you will have them constantly fill'd with Corruption ; and also while you observe this Method, your Incision need be but small, for the Matter will find itself a Passage through a very small Orifice, when that happens to be rightly disposed.

As soon as the Matter has fully discharg'd itself, you may press out what remains gently with your Thumb, and then make a Dossil of fine Flax, and when you have dipt it in warm Basilicon, which is the properest Digestive in all such Intentions, you may introduce it into the Orifice, but not

too far, neither must that be continued above three or four Days in any common Case; for the keeping the Orifice too long open, will derive too great a quantity of Matter upon the Parts, and will cause them also to ulcerate, and sometimes to turn fistulous. And for the same Reason the use of Tents must be very prejudicial, as they most commonly have that Effect.

And therefore when the Running begins to lessen, you need only apply smooth flat Pledgits of Lint, arm'd with the same Ointment, over the Orifices, and above them a thick Compress of soft Canvas, in several Doubles, to fill up all the vacant Space between the Jaws, that the divided Parts may again be united; and if you find little hard Lumps remain after the Sores are healed up, you need not be much surprized, neither will they be of any ill Consequence, for these may be remov'd by a defensive Plaister, for which purpose we recommend the following, which is easy to be made, and is very good.

" Take common Diachylon and Red-lead Plaister, of
" each four Ounces, common Pitch two Ounces, dissolve
" them in a Gallipot, or Iron Ladle, over the Embers, with
" a sufficient quantity of Oil, or Hog's-lard; then take
" Bole in fine Powder an Ounce and a half, and stir it in-
" to the Mixture, and make it to the Consistency of a
" Plaister; if it be too hard, you may dissolve it again
" with a little more Oil; and if it should chance to be
" too soft, you may add a little more to the Diachylon.

This must be spread on Leather, or a piece of thick Dowlis; and after the Hair has been clipp'd off very close, it may be notch'd and apply'd all under his Chaps, where it is to lie as long as it will stick on; and by the Help of this, all the little hardnesses will be dissolv'd.

The Basilicon which we have recommended for dressing the Sores, may be had ready made at any Apothecary's; but it will be the more appropriated to Horses, if half an Ounce of Turpentine be mix'd with every Ounce of it; or the Farrier may make it himself in the following manner.

" Take yellow Wax, Rosin, and common Pitch, of
" each half a Pound, Oil or Hog's-lard nine Ounces, com-
" mon Turpentine one Pound; melt them together over a
" gentle Fire, constantly stirring, or else the Pitch will be
" apt to burn; then strain it through a coarse Canvas,
" and keep it for use.

But

But if this Ointment should incarnate, or make the Flesh grow too fast, you may mix it with a little of the Powder of Verdegrease, made very fine, or the Powder of red Precipitate, which will keep that under; but further Directions shall be given herein when we come to treat of Ulcers; we shall therefore go on to observe what is necessary to be done internally.

If you find your Horse hearty and well, notwithstanding those Tumours, there will be no great need for any thing but to give him plenty of warm Water, mixt with Oatmeal, to drink, keeping him, in every other respect, to his usual Diet; but if you observe him to be feverish, and to forsake his Meat, it is a Sign Nature is over-much oppress'd, and requires some Assistances; and therefore to relieve that Oppression, you may give him once or twice, or oftener, as you shall see occasion, a few Broth by way of Clyster, or a Decoction made with two or three Handfuls of Marsh-mallows, mixt with a quarter of a Pound of common Treacle or Molossus.

And if you observe the Swellings to continue hard, but have little or no tendency to a Suppuration, those things which have already been recommended for the Cure of putrid and malignant Fevers, may, in that Case, be given with Success; or if those things are not in a readiness, you may give him the following cordial Drench.

“ Take Gentian-root and Gallangal in fine Powder, of
 “ each half an Ounce, Cloves and Cinnamon, of each one
 “ Dram, Saffron one Scruple, Powder of burnt Hartshorn
 “ two Drams; let this be given in a Mixture of Milk-
 “ water and White-wine, or in a Pint of Ale. After which
 “ give him moderate Exercise for half an Hour; and
 “ when you bring him into the Stable, let him be ty'd up
 “ another half Hour; and then you may permit him to
 “ eat fresh Hay.

An Ounce of Venice-Treacle dissolv'd in a little Milk-water, or warm Ale, and given once or twice a Day, will be of great service to assist languid Nature, and will either help to bring those Swellings to Maturity, or will dispose them to perspire, and go off in a kindly manner.

Sometimes the Strangles are cast off chiefly by the Nose, and sometimes they break inwardly about the Roots of the Tongue, and when that happens, most of the Matter issues from the Nose also. In either of these Cases the Horse should be moderately rid, for that will help

help him more effectually than any thing else to expel the Matter, and will not be attended with such ill Consequences as Fumigation, and the injecting of hot things, or the putting of Feathers up the Nose; for by this Means you do not assist Nature, but constrain her, which is no ways agreeable to sound Practice. But if the Swellings break inwardly, it will be very proper to wash his Mouth sometimes with Red-wine mixed with Honey of Roses, for that will keep it clean, and prevent Ulcers; but if the Sores be like to continue, which can only happen when the Horse is in a bad State of Health, you may dissolve a quarter of an Ounce of crude *Sal Armoniack* in a Pint of Water, and wash his Mouth with it once or twice a Day.

If the Discharge be plentiful, and the Matter well digested, there will be but little Occasion for after Helps, as Bleeding and Purging; but if any Accident happens, either from the State of the Body, or from bad Management, that the Cure seems imperfect, and the Horse does not thrive upon it, then Recourse may be had to Purging: For which Purpose I chiefly recommend the Preparations of Aloes, because these are the more effectual to work upon the Blood, and to break it of its Viscidities. And after Purging has been three or four times comply'd with, one of the following Balls may be given every Day, and continu'd for some Time.

" Take Gentian, Zedoary, and Gallangal, of each four
" Ounces, Cloves, Nutmegs, and Cinnamon, of each half
" an Ounce; Myrrh six Ounces, calcin'd Hartshorn half
" a Pound. Let all these be made into a fine Powder, and
" incorporated together with Gum Arabick dissolved in
" Water, and made into Balls weighing two Ounces
" each."

But if your Horse be of small Value, the following may be given, which perhaps will answer the End, and be little inferior to the other.

" Take the Powders of Gentian and Gallangal, of each
" six Ounces, Antimony finely prepared eight Ounces, Law-
" rel-berries, Coriander and Caraway-Seeds in Powder, of
" each an Ounce; the Powder of calcin'd Hartshorn ten
" Ounces. Let these be made into Balls weighing two
" Ounces, as the former; one of which may be given
" every Day for the Space of a whole Month, and they
" will contribute very much to rectify your Horse's Con-
" stitution,

"stitution, and to cleanse his Blood from all Impurities."

I have insisted the longer on this Subject, as the Method here laid down is not only to be observed where there has been an imperfect Discharge of the Strangles, but also in all other Impostumations and inflam'd Swellings, where the Endeavours of Nature seem to have been insufficient; and to this we shall constantly refer in all such Cases.

C H A P. XXX.

Of the false or bastard Strangles.

A Mistake of Solleyfell.

THE last mention'd Author accounts for this Distemper after a very strange manner, and in a way that is directly contrary to Nature. He says, When the Strangles have not been thoroughly discharg'd at the usual time, a latent Ferment will remain in the Body, which, in its proper time, will agitate the Humours, and cause them to fall into the same Place where they should have been cast off at first. And this, he says, will sometimes happen five or ten Years after, when a Horse is ten or fifteen Years old. But besides, that there is no such Ferment in the Body of any Animal, there is no such Regularity in Nature; and that may be plainly proved by his own Observation, where he takes notice of the Matter of the Strangles falling off sometimes upon other Parts of the Body that have been previously weaken'd; and this is truly the Way of Nature. And therefore when Swellings happen to old Horses about the Jaws, and among the Kernels, it is an infallible Sign of a crazy Constitution in them, and is oftentimes the fore-runner of the Glanders, unless that has been occasion'd by some Violence. And we may even observe in human Bodies, in all tender and delicate Habits, the same disposition to Swellings in the glandulous and kernelly Parts, but especially in those that are consumptive; and as in human Bodies the Humours have chiefly a tendency towards the Groins, &c. in a Horse they move towards the Head and Jaws, forming Swellings in those Parts, as they are dependent in a Horse, according to our repeated Observations.

Therefore in such Cases, instead of being too busy to ripen and draw away such Kernels, unless they be inflam'd, and have a tendency to Suppuration, the Horse ought to have

have plenty of good Feeding, with the help of some Restoratives, and a continued Course of the Cinnabar Pills, as directed in the Farcin, to attenuate and open those hard Obstructions; and these will be the most likely Means to recover him.

And this Method ought chiefly to be followed in all imperfect Strangles, whether a Horse be young or old; only that to young Horses, Restoratives will not be necessary, unless he be also consumptive. But the Reader may consult the preceding Chapter.

C H A P. XXXI.

Of the Vives.

THE *Vives* has a very near affinity to the Strangles, and seems chiefly to differ in this, that as the Strangles for the most part happens to young Horses and Colts, while they are at Grass, and while they feed with their Heads downwards, the Swelling and Inflammation has therefore the greater tendency forwards between the Jaws; but the Vives will happen to a Horse at any time, and is more particularly seated in the Glands or Kernels under the Ears. When the Disease is violent, all the Parts about the Throat will be inflam'd, and the Passages of the Wind-pipe and Gullet so much press'd upon, that a Horse in this Condition being unable to swallow, of necessity leaves his Food; and that does not proceed from the Imperfection in those Parts alone, but also from the Violence of the Pain, which affects the Nerves to such a degree, that all other Sensations are, as it were, lost in that.

The Vives, a Swelling of the Parotid Glands.

The Cause is chiefly from Cold, and from all those things that induce and bring on a Cold; as riding in the Night-Fogs, when a Horse has not been used to it; drinking cold Water while he is warm, or suffering a Horse to cool too soon after hard riding, &c.

The Cause.

The Signs are apparent in the outward Swellings, which, when the Inflammation is violent, are accompany'd with Restlessness, and sometimes with a Fever; sometimes he lies down, but immediately starts up again, being uneasy in every Posture. Sometimes the Pain is less violent, and then he not only lies down quietly, but will also feed.

The Cure.

As to the Cure, it is necessary to consider that although the true Method of carrying off inflam'd Swellings, is by suffering them to come to Maturity and Ripeness; yet when these happen upon any Part that may endanger Life, then Nature ought to be somewhat restrain'd, as we have observed in the beginning of this Treatise. And therefore when you observe him under violent Pain, you may freely venture to take away some Blood from his hind Parts, to make a gentle Revulsion.

After Bleeding, because Horses are, for the most part, costive, in all such Affections he may be kept moderately open, with such Clysters as have been directed for the Strangles; and these may be repeated once or twice a Day, while the Horse is in violent Pain.

And because in all such Cases it is proper to keep the Secretions at Liberty, he ought to have Plenty of warm Water sweeten'd with Liquorice, and sharpen'd with *Sal Prunelle*, or purify'd Nitre, or Salt-petre; or the following.

“ Take two Ounces of White-wine Tartar, beat it to a Powder, and dissolve in it a Quart of warm Water, and dissolve in the same Liquor half an Ounce of crude Sal Armoniack, and pour it into his Water, which ought also to have a Handful of Oatmeal boil'd in it.”

The frequent Use of those Things will promote the Discharges by Urine and insensible Transpiration, so that the Swellings will sooner ripen, not only as there must by this means be a lesser Derivation towards them, but also as the Matter will become more attenuated, and fitter for a speedy Suppuration.

Venice Treacle, or *London Treacle*, with the other Medicines above prescrib'd for the Strangles, may also be given, observing the same Precautions, not only as to Internals, but likewise in Externals; for softening Poultices are absolutely necessary, but those of Yest, and Meals made of common Grain, are apt to draw too violently, and therefore to be rejected, especially while there is already an over-great Inflammation. But those which are the best fitted for the Swellings of the Kernels about the Head and Neck, or such as are frequently made of the Pulps of emollient Herbs, as Mallows, Marsh-mallows, Agrimony, Mercury, and the like; the Flowers of Violets, Melilot, and Elder, and the Roots of white Lillies, the fat and unctuous Seeds, as Linseed, Cummin-seed, and Fœnugreek;

greek ; and these should also be quicken'd with a mixture of penetrating Oils or Ointments, as those of Marsh-mallows, Earth-worms ; or with some spirituous mixture, as the rectify'd Spirits of Wine, or Brandy, or a small quantity of Camphire in fine Powder, stirr'd into the whole Composition over warm Ashes, or before the Fire ; for by this means, a moderate Perspiration will be still maintained in the diseased Part, which might otherwise be overmuch obstructed by the Relaxation that might follow a continual Application of emollient softening things.

And it will be here necessary, as well as in the Strangles, after the Swellings are open'd, to apply little Bolsters in all the hollow Parts between the Jaws and under the Ears, that if there should chance to be a more than ordinary quantity of Matter continually falling into the hollowness, it may not have room to make any other Lodgment for itself but what is proper.

Sometimes those Kernels continue hard and swell'd without Inflammation, and sometimes adventitious or bastard Kernels grow out into those Parts, and are of little or no use, but rather to be accounted Excrescences ; these may be extirpated and cut off, taking Care to avoid hurting the Branches of the *Jugular* Artery ; and if there chance to be an Effusion of Blood from the smaller Branches, which are often enlarged after continued Swellings in those Parts, that may be stopp'd by searing with an Iron moderately heated, according to the Directions hereafter laid down for Cauterizing and giving the Fire.

But if these Kernels continue hard and swell'd without Inflammation, and have an Appearance, as if they might be resolv'd, it is then much the best way to use such Applications as are proper to discuss them ; because Swellings and Inflammation in the glandulous kernelly Parts are troublesome, whether the Issue be good or bad.

Therefore the same Plaister that was already directed to remove the remaining hardness of the Strangles, may be apply'd all over these Kernels, and the same Method us'd internally to promote the Passage of the Blood thro' their compact Substance ; but the Reader may receive further Satisfaction on this Head, by consulting that Part where we have made some Observations concerning Tumours.

C H A P. XXXII.

Of the Anticor.

*The Anticor
an Inflammation
of the Gullet.*

MOST Authors have been mistaken as to the Nature of this Disease; the greatest number attribute it to the Heart; and *Solleysell* calls it a Swelling of the *Pericardium* or Purse of the Heart. But they are all plainly in an Error; for an *Anticor* is an Inflammation in the Gullet and Throat, and is the very same which in Man is called *Angina*.

The Cause.

It proceeds from the same Causes that bring on infinite Diseases on Horses, to wit, hard Riding, exposing a Horse to the Cold, and giving him cold Water to drink when he is hot, full Feeding, and whatever else may cause a sudden Stagnation in the Blood.

The Signs.

The Signs are, first, all those that accompany a Fever; for an *Anticor*, while it is internal, never wants a Fever to attend it; but when it shews itself externally, the Fever begins to abate, unless it continue to be both external and internal.

So long as the Inflammation continues in the Gullet, the Horse forsakes his Food; and though he has frequent Inclinations to drink, and albeit his Water be made moderately warm, the first Gulp deters him from meddling with it again, until he has forgot the Pain and Agony it put him into. And the Pain of the Gullet is yet more manifest from this (and I believe every Farrier must have made the same Observation) that whenever a Drench is given him he staggers, and seems as if he would fall down, and makes several short interrupted Groans, or rather Gruntings, and sometimes will break out into a cold damp Sweat about his Ears.

The Cure.

The Cure must be begun by Bleeding, and that needs not be very sparing; for this Disease seldom happens to Horses that are poor and low. And here we also approve of striking one or other of the Veins on the hind Parts, to make Revulsion.

After Bleeding, the following Clyster may be given.

“ Take two Handfuls of Barley, two Ounces of *Sal Polychrest*, reduc'd to fine Powder, boil them in two Quarts of Water for the space of a quarter of an Hour, add to the Decoction a Pint of Urine, a quarter of a Pound of fresh Butter, and two Ounces of Oil of Rue. Let this be given Blood-warm, and repeated twice a Day, or oftner.

If he takes to Food, nothing must be given him but moisten'd Hay, and scalded Bran; and what else, must be chiefly such things as are proper to keep down Heat and Inflammation, and abate the feverish Symptoms, for which purpose we recommend, after Bleeding, those Remedies that are proper to promote Sweat. Therefore let the following Drench be prepar'd for him.

" Take Treacle-water and Carduus-water, of each one Pint, dissolve in these two Ounces of old Venice-Treacle, and after this has been exhibited, cloath him well, and give him a little warm Water to drink; instead of the Treacle and Carduus-water, a Pint of stale Beer, mix'd with small Beer, may be us'd." Nothing is so effectual to remove Inflammations, especially after Bleeding, as Sweating; and therefore if you find it difficult to promote Sweat, you may give him the following Ball.

" Take of old Venice-Treacle two Ounces, volatile Salt of Hartshorn fifteen Grains, *Matthews's* Pill one Dram, Camphire in Powder six Grains, Powder of Liquorice, or Sassafras in Powder, what is sufficient to make it into a Paste; let this be exhibited after the Operation of the Clyster is over.

And if the Symptoms begin to abate, you may venture to give your Horse a gentle Purge, for which purpose the *Pulvis Cornachini*, commonly call'd the Countess of Warwick's Powder, takes place beyond all others; and is thus made.

" Take Scammony prepar'd with the Fumes of Brimstone four Ounces, Diaphoretick Antimony two Ounces, and the same quantity of the Crytals, or Cream of Tartar, make them into a fine Powder.

The Dose is two Ounces, made up into a Ball with Butter and Flour, to be given with the usual Precautions.

This Medicine not only purges the Belly moderately, but also keeps the Pores open, and carries off a great deal by Sweat and insensible Transpiration.

If the Swelling appears outwards, and at the same time the other Symptoms abate, you may then leave off Purging, for what is intended by that Evacuation, is chiefly to disperse the inward Disorder; and then you are only to apply ripening Cataplasms and Poultices, allowing him at the same time *Sal Prunellæ*, Salt-petre, or the *Sal Polychrestum* dissolv'd in his Water.

The Cataplasim for this purpose may be made of the following Ingredients.

“ Take Linseed and Fenugreek-seeds of each two Ounces, Camomile, Melilot, or their Flowers, of each four Handfuls ; boil them over the Fire till most of the Moisture be evaporated, then pass them thro’ a Sieve, and add a quantity of Cows Dung equal to the other Ingredients, with a sufficient quantity of Ox or Sheep’s Suet to keep it moist.” Let this be applied twice a Day pretty warm.

Or instead of this compounded Poulrice, Cows Dung alone apply’d warm to the Part, with a sufficient quantity of Suet or Ointment of Marsh-mallows, may be sufficient to bring the Swelling to Maturity.

When it grows soft, and the Matter seems ready for a Discharge, it may be open’d in the dependent lowermost Part, by the Application of a hot Iron, keeping a Dossil in the Mouth of the Wound, until the Running abates ; and likewise applying Compresses and convenient Bandage to keep the elevated Skin close to the subjacent Flesh, that it may be the sooner united ; but if the Cavity of the Impostumation be large, it will not be amiss to lay it open with a hot Knife an Inch or more ; or if you would choose to avoid the Scar, with a cold sharp Instrument, or with a Pair of Scissars.

The Cure may be finish’d with applying only the *Unguentum Basilicum*, or a Digestive made with Turpentine, the Yolks of Eggs, or Honey, with a moderate mixture of Brandy, or Spirit of Wine ; and if any foulness appears, or if it heal too fast, or spongy soft Flesh arise, Pledgits dipt in Copperas-water, or a Solution of blue Vitriol may be apply’d, which will keep it smooth and even.

But if the Swelling increase very fast, which oftentimes happens, and that there is no tendency to Digestion, but that it arises up towards the Neck, affecting all the Muscles in those Parts ; the Horse will then be in danger of Suffocation, and unless speedy Relief be given, he must soon be strangled.

Therefore, besides repeated Bleeding, if he is not too much wore out, it will be convenient to take a hot searing Iron, and apply it to five or six places on the lower Part of the Swelling, cauterizing those Parts, that they may be speedily brought to Matter, which may also be dress’d with Flax or fine Hurds dipt in Tar and Turpentine, mix’d before the Fire, and apply’d warm ; for by giving Pain in those dependent and inferior Parts, you cause the Humours to flow downwards from the Swelling, and by making Vents that are sufficient to discharge them, you anticipate the Pain, and

and take off from its Violence, which is also an Extreme to be avoided; neither need you to be afraid of the Swelling that may casually happen in the fore Legs; and, perhaps, even his Limbs, by cauterizing, for that cannot be of such ill consequence, as when it is upon the Neck and Throat, neither will it be of any continuance, if due Care be taken of the Issues.

The *Sieur de Solleysell* recommends the making of small Incisions with a Fleam or Lancet, in eight or ten places on the Swelling, and to thrust into the Holes, between the Skin and the Flesh, pieces of the Root of black Hellebore of the bigness of the Tag of a Point, and if the Tumour be very large, he recommends the use of white Hellebore, at the same time chafing the Part with the Ointments of Agrippa and Marsh-mallows. The Roots, by their hot burning Quality, draw down and increase the Swelling, and the Ointments are to ripen the inclosed Matter, and fit it for a Discharge.

The same Author also recommends the use of *Retories*, or *Ruprories*, for drawing an immediate flux of Moisture from the diseased Part. These are Ointments of the same nature with those which are made to draw Blisters on the human Body, and are composed of the like Materials; and because they may be used with much safety, we shall insert two or three that are easily made, and will be found of no less efficacy than those that are more compounded.

“Take of Basilicon four Ounces, black Pepper and Ginger of each half an Ounce, Spanish-Flies two Drams. Let the Flies, Pepper, and Ginger, be made into a fine Powder, and incorporated with the Basilicon.” The following is yet more powerful.

“Take a quarter of a Pound of Basilicon, one Ounce of red Precipitate in Powder, half an Ounce of Euphorbium, and two Drams of the Flies.” Or the following, which is yet more efficacious than either of the former.

“Take Oil of Bays four Ounces, Euphorbium in Powder two Ounces, *Cantharides* or Spanish-Flies half an Ounce.

These may yet be made stronger or weaker, according to the Use they are put to. The way they are apply'd, is by spreading them by little at a time upon the Part affected, holding a hot Bar of Iron to make them sink in; and this Operation may be repeated as often as the Case requires, but especially until they have drawn out a plentiful deal of reddish Water; but they must be sparingly us'd on some Parts, as we shall more particularly observe hereafter.

C H A P. XXXIII.

Of the Diseases of the Stomach; and first, of the Loss of Appetite, and of a depraved Appetite.

AS the Food of Horses consists of the most simple Productions of the Earth, they cannot be liable to many Diseases in their Stomachs; and therefore when we observe a Horse lose his Appetite, we may very readily suspect that Disorder to be a Symptom of some other Disease, or to be the effect of some sudden Accident or Mismanagement. For it is very certain, whatever causes the Blood to flow in an over-great quantity into the Stomach, must be the occasion of a plenitude and fulness of the Vessels, which, according to its degree, will lessen the Appetite and Inability of Digestion; and if it amounts to an Inflammation, or if those Vessels be very much distended, it must needs cause not only a want of Appetite, but a Loathing also.

The want of Appetite distinguish'd from that which accompanies a Fever, or other Sickness.

And thus we observe in all Fevers and violent Colds, a Horse forsakes his Food; and sometimes we may take notice in him the same dislike to eating after immoderate Exercise, or after drinking cold Water when he has been heated; or after a long and tedious Day's riding in hot Weather; and, in fine, after all those Errors that may be the Cause of Fevers, and most other Sicknesses. And because such Disorders very often go off without any other visible Symptom than the Loss of Appetite, they are therefore very often attributed wholly to the Stomach.

But the Diseases of the Stomach, which, properly speaking, produce the want of Appetite, have not their immediate dependence upon any other Disease, but proceed either from the Quantity or Quality of what is contain'd in it, and in this Case the Signs are different from the former; for in the one the Horse wholly forsakes his Food, and in the other he is dainty, yet he eats, though it be but little, and is capable of doing proportionable service.

The Cause. And this Imperfection, for the most part, proceeds from a Lensor in the Bowels, and Costiveness, when a Horse has stood some time in the Stable, has had full Feeding, without proportionable Exercise; for by that means the Stomach is not only too full, but the Juices turn corrupted by their Stagnation, and acquire some evil Qualities that

that may take away the Appetite, or cause a Horse's Appetite to be vitiated; and when the last happens to Horses, we often observe them, by a sort of Instinct, crave after those things that are very different from their natural Food, as the eating of Mud or Clay out of the Walls.

But in handling the Cure, we need say but very little concerning that Species of want *The Cure.* of Appetite, which is often the sudden Effect of some sudden Accident, or ill Management; for this is frequently cur'd by Blood-letting alone, as it is, for the most part, no other than a Symptom of a beginning Fever, and of such a one where the Blood, if at all, is but little vitiated.

Wherefore, in any such Case, a Quart of Blood may be taken from the Neck-vein, after which may be administered such things as are cooling, and fit to keep down a Fever.

His Diet ought to be scalded Bran, and his Water sharpen'd, as has been directed in such Cases, and, with the assistance of moderate Exercise, his Stomach will soon come to him.

But when the want of Appetite proceeds either from a constant fulness, whereby the Action of the Stomach is hinder'd, that its sides cannot meet together so as to excite the Sensation of Hunger; or if it proceeds from an evil Quality in its Contents, as for instance, if there be slimy Matter ingender'd in it, either from raw indigested Food, from the want of a free Discharge of the Dung, or if any sharp corrosive Matter be in it, causing a deprav'd Appetite, or a Sensation of Hunger by fits, as we oftentimes observe, the most rational Method in all these Cases, is in the first place to evacuate and purge the Stomach, by such things as are appropriated either to sweeten the Juices, or attenuate the viscid Phlegm.

And this Method seems to be the most reasonable with respect to Horses, because, as we have elsewhere observ'd, they are no ways disposed to vomit, or throw any thing out of the Stomach that has once enter'd into it, and that seems to be owing to the figure of the Gullet, which is contracted more than in some other Creatures, and has a spiral Direction, a little above its Insertion into the Stomach; for had it been otherwise, tho' a Horse might have vomited as well as some other Animals, yet, as he feeds much with his Head downwards, he would then, perhaps, have lain under the Inconveniency of having his Food fall sometimes back again into the Gullet, which would be very troublesome to him; and we may likewise observe from frequent Experiments, if there be never so large a quantity of any vomiting Medicine given to a Horse, it has
no

no effect that way, but either works by a Discharge of the Dung, or insensibly upon the Mass of Blood as an Alterative.

And therefore purging Medicines are, no doubt, the most appropriated to give immediate Relief in all such Foulnesses of the Stomach as are of this kind. But if a Horse be costive, no purging Physick ought to be given him but what is very moderate, unless the Bowels are first cleans'd by the use of Clysters; for if the Guts be very full of Dung, and if that be harden'd when purging Medicines are administered by the Mouth, they sometimes prove fatal to Horses; for when the Physick cannot make its way downwards, it flings a Horse immediately into Convulsions, because he wants that benefit of Nature which Men and some other Animals have of throwing upwards. But we shall lay down the Method that is proper to be used in those Disorders.

And first, if the Horse be costive, the following emollient Clyster may be given, after he has been rak'd by some Boy, or one that has but a small Hand.

"Take of the Root of Marsh-mallows sliced half a Pound, the Leaves of common Mallows three Handfuls, Linseed and Fenugreek-seeds of each two Ounces, boil them in three Quarts of Water for the space of half an Hour, strain the Decoction thro' a coarse Cloth while it is hot, and dissolve in it four Ounces of Honey, two Ounces of common Treacle, and six Ounces of Oil or Butter." Let this be injected lukewarm, holding his Tail close to his Tuel as long as possible; and let it be repeated for two or three Days, or until the Horse's Body is open enough, and that there is a way made for purging; after which he may have the following Drench given him.

"Take of the Roots of Gentian and Zedoary sliced, of each two Handfuls, Hyssop and Rue of each two Handfuls, the Leaves of Sena two Ounces, Aniseeds or Fenel-seeds bruis'd an Ounce; boil them in three Pints of Water to the Consumption of one Pint, dissolve in the Decoction two Ounces of Lenitive Electuary." To be given in the Morning, keeping him fasting two Hours before, and one Hour afterwards, then he may be rid or walk'd gently for an Hour more, and when his Physick begins to work, he may be permitted to drink warm Water strew'd with Oatmeal. Or the following purging Balls may be given.

"Take of the best Aloes an Ounce and a half, Diagridium two Drams, Gallangal in Powder half an Ounce, Cloves half a Dram." Make them into Balls with Flour and Butter.

These

These Balls, or the preceding Draught, may be given with Success, to recover lost Appetite; and may for that Purpose be repeated as often as there is occasion, which needs be but seldom, unless the Horse has been some considerable Time without a good Appetite, and in that Case he may be purg'd twice a Week, for a Fortnight or three Weeks successively; and the Days he does not purge, the following Powder may be given him in a Decoction, wherein a Handful or two of Rue has been boil'd.

"Take Gentian in Powder two Drams, Gallangal, Zedoary, and Calamus Aromaticus, of each a Dram and a half, Cinnamon and Bay-berries, of each a Dram." Let these be pounded together, and be given in the Decoction, or in a Pint of White-wine.

If the Horse be of a delicate washy Constitution, and unable to bear much Purging, all that is necessary in that Intention may be answered by Clysters, with the Use of scalded Bran now and then. The preceding Powder ought also to be given every Day, or what our common Farriers oftentimes administer to restore Appetite, *viz.* Garlick and Rue champt and pounded with Butter and Flower, may be very serviceable, especially to strong robust Horses.

But above all Things, the Use of chewing Balls, and constant Exercise, is absolutely necessary, and with the Concurrence of a few of those Helps above directed will soon recover a Horse to his Appetite.

If you observe your Horse mangle his Hay, and continually nibbling Mud and Dirt; you may then very reasonably suppose his Stomach to be foul and out of Order; nor is it improbable that this Desire after Earth and Mud proceeds from an Acidity and Sourness of the Juices; for those Creatures, by a Sort of Instinct, very often, of their own accord, take to such Things as are proper to relieve them of troublesome and uneasy Sensations: And this is very observable in Dogs and Cats, who are led by the same Instinct to swallow rough Blades of Grass, in order to make themselves vomit, when they find their Stomachs oppress'd. These are Instances that are familiar, and known to every one; but natural History abounds with an infinite Number of the like Instances in other Creatures; so that we are not to doubt but an Animal of the greatest Sagacity, as a Horse certainly is, and as he is also as much exposed to Diseases, if not more, than any other Creature, must therefore, when at Liberty, oftentimes be led to his own proper Reme-

Remedies. I could give some very odd Instances of this in Horses from my own Observation, but I shall only here take notice of what relates to the present Case.

They must needs have but little acquaintance in Physick, who do not know that Earths have a Virtue in them, not only to dry up a Superfluity of Moisture, but some of them to imbibe and take off the Acidity of sour Liquors, and it is, no doubt, from such a Depravity in the Stomach, that a Horse leaves his ordinary Food to eat dry'd Earth, or Mud; and this he is forced to do from the craving of his Appetite, and is often compell'd to take up with the worst, for want of something more efficacious.

When I attended the Army, I once took an Opportunity of gratifying a Horse in a very ardent Desire of this kind, who had suffer'd very much from his Keeper, and had been often beat for eating Clay out of the Wall. I brought him a piece of Chalk the bigness of a Man's Fist, and laid it into the Manger, he turn'd it over with his Nose several times, and at last broke off some of the Corners and eat them, whereupon I took up the Chalk to break it into small pieces; and because he thought I was going to rob him of it again, he push'd his Head towards me with all the eagerness imaginable, and when it was broke, he eat the greatest part of it, and fell immediately to his Hay. The Dragoon who kept him, told me he gave him more Chalk afterwards, and observ'd he eat his Hay the better for it; for being commanded to march soon after, he was perfectly cur'd by the Exercise, and had no further Cravings of that kind.

This Remedy is very easy, and may be had every where, or instead of it burnt Hartshorn in Powder, which is yet much better, may be given; but those Remedies will be still the more efficacious, if, previous to them, Purging be administer'd, and afterwards constant Exercise be given, there being nothing which contributes so much to wear off those Disorders as Exercise, when it is moderate. But the Remedies prescrib'd in the following Chapter, will also be useful in this Case.

CH A P. XXXIV.

Of the hungry Evil.

The hungry Evil generally at first proceeds from emptiness.

THIS Distemper generally proceeds, at first, from bad Keeping, or excessive Purging: but there are some Horses who seem

seem to be incurable, because albeit they feed plentifully, their common and natural Discharges seem at the same time to be more than what is proportionable to their Feeding.

Most Horses that have this Infirmary on them are but Jades, and therefore we shall spend but little time about it; however, since there may be some very good Horses that have a voracious Appetite after such Cases as we have mention'd, and may be recover'd, we shall lay down the properest Means that can be made use of for that Purpose.

And therefore since the hungry Evil in them proceeds from Emptiness, they ought, *The Cure.* besides plenty of Food, to have those things administer'd to them, that are proper to lubricate and soften the Fibres of the Stomach, and to lessen that Sensation; for which Purpose the Leaves of Mallows, and Roots of Marsh-mallows, should be boil'd in their Water with Liquorice, and their Corn should be mix'd with the fat mucilaginous Seeds, as Fenugreek and Linseed, &c.

But if he cannot be easily brought to the Use of those things in the way of Diet, they may be given him after the following Method:

“ Take the Roots of Marsh-mallows two Pounds, Linseed and Fenugreek Seeds of each four Ounces, first pound the Seeds, and then the Roots, to a Mash; and afterwards make them into Balls, with a Mucilage of Linseed or Fenugreek, as big as a Pullet's Egg, one of which may be given in the Morning, one about Noon, and another in the Evening.

Markham's Balls may also be given in this Case, especially if the Brimstone be kept out of them; and in fine, all fat unctuous Medicines, for those not only help to fatten a Horse, but take off those violent Sensations of Hunger that cause him to eat so voraciously, as is usual in such Disorders.

C H A P. XXXV.

Of the Diseases of the Guts; and first of the Colick.

THE Colick, Fret, or Gripes, which, in the Farriers Terms, tho' very injudiciously, is meant to signify most of the Diseases of the Guts, is no other than the Pain that accompanies all the particular Disorders those Parts are liable to; and therefore when a Horse is troubled

The Colick not so properly a Disease, as a Symptom that may attend all Indispositions of the Guts.

troubled with Colick Pains, the Farrier ought diligently to enquire into the true Causes thereof; for as no Part is more sensible than the Guts, any thing retain'd too long in them, or any thing ejected and thrown out in an over-great quantity, will, on some Occasions, bring a Horse into exquisite Torment; we shall therefore take particular notice of the different Causes of such Disorders, and suit the Method of Cure according to their several Exigencies.

C H A P. XXXVI.

Of the dry Gripes and Adstriction of the Bowels.

*From whence
Costiveness and
dry Gripes pro-
ceed.*

HORSES are seldom or never troubled with any other Adstriction in their Bowels, excepting what proceeds from the Dung hardening and obstructing those Passages; and therefore we shall have the less to say upon that Head, having spoken to it already, in that Chapter where we have treated concerning Surfeits, only we shall here add, that when the Matter is pent up in the first Passages, to wit, in the Stomach and Guts, and putrifies there, the Juices turn sour, viscid and ropy, and fret the tender Membrane which covers the inside of the Guts; by the Viscidity also the Wind is intangled, which creates a Swelling and Distention, so that the Belly becomes hard like a Drum; and if the Excrements be very much harden'd in the great or straight Gut, they cause a Pressure upon the Neck of the Bladder, and hinder the Passages of the Urine, that a Horse cannot piss; sometimes the Fundament swells, and all towards the Sheath, which is very dangerous.

A Horse in this Condition must needs be in great Pain, and even in Danger of his Life, if a speedy Relief is not had; therefore, in order to the Cure, after he has been rak'd, and that with a great deal of Caution, the following Clyster ought to be injected.

The Cure.

“ Take the Leaves of Mallows, Marsh-mallows, and Mercury, of each three Handfuls, boil them in three Quarts of Water for the Space of half an Hour; to the strained Decoction add “ Lenitive Electuary four Ounces, Spirit of Wine or Brandy half a Pint, Oil or Butter half a Pound. Let this be injected lukewarm, and retain'd as long as possible.

Four

Four Hours after the Operation of this Clyster, if the Horſe is not very much relieved, the following may be given.

“ Take Leaves of Mallows and Marſh-mallows, of each three Handfuls, as above directed, Linſeed and Fœnugreek Seeds of each two Ounces, Coriander Seeds, Cummin Seeds, and Aniſeeds, of each two Drams, Bay-berries, Cubebs, and *Jamaica* Pepper, of each one Dram. Let theſe alſo be boil’d for the Space of half an Hour, or be infus’d in boiling Water for the ſpace of two Hours; and to the Decoction add one Pint of Emetick Wine.” Let this be given as the former; and by the Help of theſe, the Adſtriction of the Bowels, or the Coſtiveness, may be remov’d: The Reader may alſo conſult that Chapter concerning Surſeits, where there are other things preſcrib’d, which will alſo be of Service.

But if the Horſe has, along with his Coſtiveness, violent Colick Pains, proceeding from Wind and Phlegm; after the groſſer Excrements are diſcharg’d, the following Clyſter may be given.

“ Take Red-roſe Leaves two Handfuls, Tops of Centaury the leſs, and Wormwood, of each one Handful. Boil them in two Quarts of Water to three Pints; and in the Decoction diſſolve two Ounces of Diaſcordium, and half a Pint of Treacle-water, or Spirit of Wine.

This will inſallibly take off the Pain, and lie in the Bowels like a Cordial, without giving him the leaſt Motion to dung, but compoſe and lull his Spirits, and in a Minute take off the violent Gripes; if the Pain ſhould chance to return, the ſame may be repeated; and, if neceſſary, the Doſe of Diaſcordium may be enlarg’d to three Ounces or more; and there is hardly any kind of Colick Pain but what may be carry’d off by it; and I have, by my own Direction, cur’d Horſes that have been in the greateſt miſery imaginable, and have ſeen them in a quarter of an Hour riſe up to feed, that before were like to daſh out their Brains againſt the Walls.

Colicks and griping Pains in the Bowels of Horſes become ſuddenly mortal, that, without any regard to other Circumſtances, they ought immediately to be remov’d; and if Coſtiveness happens to continue upon the Uſe of the Remedies that are preſcrib’d for that purpoſe, that Symptom will of courſe go off in the Sequel of the Cure; for after the moſt urgent Symptoms are remov’d, the next In-

tention must be to destroy the Cause of the Distemper, otherwise it may return again.

Wherefore we recommend gentle Purging, with the use of such Things as are hot and penetrating; and this we do contrary to the Opinion, tho' not altogether to the Practice of most Farriers, who believe Costiveness to proceed from inward Heat; whereas the Heat is only the Effect of Costiveness, and not the Cause, as is easily demonstrated, and is occasion'd chiefly from cold, phlegmatick, tough Matter in the Stomach and Guts, which binds up the Excrements, which, when the Guts are full and press'd upon, cause Heat; therefore as all hot spicy things are proper to cut and destroy those Viscidities which cause the Lensor, and harbour Wind, they ought more or less to be exhibited in all Intentions that are requisite to the Cure of Costiveness. The following Purge may, for that Reason, be given, and will be found very profitable, after the violence of the Colick Pains are over, and the obstinate Stoppages of the Bowels are remov'd.

“ Take Mallows and Marsh-mallows of each one Handful, Roots of Marsh-mallows six Ounces, Leaves of Sena two Ounces, Bay-berries and Juniper-berries, of each an Ounce. Boil them in three Pints of Water to one Quart, strain out the Decoction through a Sieve or coarse Cloth, and add two Ounces of Syrup of Buckthorn.” Or this:

“ Take Mallows and Marsh-mallows of each two Handfuls, Sena one Ounce, Jalap in gross Powder half an Ounce, Caraway-seeds of either an Ounce and a half. Boil them in the same quantity of Water as above directed, to the Consumption of a third Part; and in the strain'd Decoction dissolve four Ounces of Manna.” Or the following:

“ Take eight Ounces of Manna, two Ounces of Cream of Tartar, dissolve them in a Quart of sweet Whey, and add eight Ounces of the Oil of Olives.

Either of these may be made use of after Clysters have been injected, the Horse being kept from feeding two Hours before, and two Hours thereafter. He may then be walk'd abroad for the space of an Hour; and upon his return it would not at all be amiss if there was Tripe-broth prepar'd for him, strew'd with Oatmeal; and if he seems unwilling to drink them, he may have two or three Quarts administer'd thro' a Horn, and the same Quantity repeated two Hours thereafter.

These

These will help the Operation of the Physick, loosen, and wash down the viscid slimy Matter, which not only fetters the Excrements, but intangles the Wind, which causes violent excessive Pain, by its Pressure and Distention of the *Colon*: But if the Horse be of small Value, and that it is not worth while to be at all this Expence and Trouble about him, the following purging Drench may be made use of.

“ Take Mallows and Marsh-mallows, of each two Handfuls, or four Handfuls of common Mallows (if Marsh-mallows are not easy to be had) Jalap in Powder two Ounces, Aniseeds, or Fennel-seeds, an Ounce. Boil them as above directed, and add to the Decoction four Ounces of common Treacle.” Or this :

“ Take half an Ounce of the bitter Apple in Powder, three Drams of Aloes, and one Dram of Diagridium ; make them into a Ball with Flour and Butter.” To be given as the former.

If your Horse's Fundament be swell'd, which sometimes happens to that degree before Raking and Clysters are administer'd, that he cannot stale ; because when the Excrements are harden'd and pent up in the great or streight Gut, that being full, it presses upon the Neck of the Bladder, so as to hinder the Passage of his Urine ; and if this Symptom does not wear off soon after those Means have been used, recourse must be had with all speed to those Things that are proper to keep down Inflammation, for which purpose we recommend the use of the following Decoction.

“ Take of Red-rose Leaves two Handfuls, boil them in a Quart of Water for the space of half an Hour ; add to the Decoction a small quantity of Brandy, Spirit of Wine, or Rum, and with a Sponge bathe his Fundament and Sheath often.

This Decoction should always be made as warm as he can bear it, and the Spirits mixt with it as often as it is us'd, viz. to every two Parts of the Decoction one of the Spirits.

His Yard ought to be kept up to his Belly with a gentle Bandage, because the Humours fall into it with a very easy Influx, as it is both a soft and dependent Part, by which means the Swelling and Inflammation are often kept up, after the first Cause is, in a great measure, remov'd, and sometimes proves the Occasion of a Gangrene ; and therefore to keep that suspended, the Farrier or Groom may

The Yard to be kept up when the Fundament and Sheath are swell'd.

take a piece of Canvas six or eight Inches broad, and fixing two Straps to each Corner forwards, they may be brought one on each side over his Flanks, and fastened upon his Reins, the hind Parts should have the Corners cut off, according as the Swelling happens to be more or less on the upper part of the Yard, with one single piece of strong Tape fixt to it, which coming through between his Hips, is to be brought over the Croup, and ty'd to the other two; and when this Accident happens to a Stone-horse, his Stones ought also to be suspended in a Bag of soft Flaxen Cloth, which may easily be fixt to the other.

By these means the Return of the Blood will be render'd very easy, and the Swelling will thereupon abate, which, for want of such a Method, has sometimes been the Cause of sudden Death.

But since we have ascrib'd the Cause of Costiveness and dry Gripes to viscid slimy Matter, ingender'd in the first Passages, it will be necessary, after the preceding Means have been comply'd with, and the most urgent Symptoms are remov'd, to administer such things as are necessary to destroy the Remains of those Viscidities; for which Purpose the following Powder, to the Quantity of a Spoonful, may be given every Morning.

“ Take Gentian and Birthwort-Roots, of each four
“ Ounces, Galangal, Zedoary, and Calamus Aromaticus,
“ of each one Ounce, the Tops of dry Wormwood and
“ the lesser Centaury, of each an Ounce and a half, Nut-
“ mugs, Ginger, Black-pepper and Bay-berries, of each
“ half an Ounce. Make them into a fine Powder, and
“ keep it in a Glass or Gallipot close covered.”

This may be given in White-wine, Ale, or in a Decoction wherein a Handful of Rue has been boil'd, letting him fast two Hours before and one thereafter; and if your Horse be of small Value, you may give him every Day, among a few Oats, an Ounce of Antimony, and two Ounces of Flour of Brimstone; or you may make it up into a Paste, with a little Flour and Butter, continuing its Use for the space of one Week.

Champt Rue and Garlick is also very serviceable in this Case; but all Remedies will prove the more successful if you give your Horse Exercise; and, indeed, that alone oftentimes proves sufficient; for by Exercise the whole Body is shook, and the Lentor in the Bowels and the Excrements readily fall downwards, to their Expulsion out of the Body.

I shall put a period to this Subject, with an Account of two Horses that were seiz'd with violent Costiveness, and where the Issue prov'd very different. *Two Instances of Costiveness.*

The one belong'd to a Gentleman, who, while travelling, was stopt upon the Road the second day of his Journey; his Horse was in great pain, shrunk up his Belly, often endeavouring to dung, and as often to piss, but could do neither. I was told he had been taken up from Grass a Week before he set out, and was observed to be costive all that while; but because he was to have some fatigue, they thought it unnecessary to tamper with him, which, no doubt, was very reasonable, had he not been more than ordinarily costive. *The First.* The first thing done to recover him was raking, and afterwards he had a Pipe of Tobacco given him at his Fundament; the Smoke of the Tobacco prov'd a gentle Stimulus, and made him oftentimes essay to dung, but without Effect; so that at last, being in excessive Pain, hanging his Head, and turning it frequently towards his Belly, the Owner thought fit to send for a Farrier, who at first sight said he would die; however, he went and prepar'd him a comfortable Drink, as he term'd it, which, by the smell, seem'd to be some hot Aromatick Seeds boil'd in Ale.

After this he became much worse, for there being no free Vent upwards or downwards, and the wind being now more rarefy'd by the hot spicy Things, and consequently taking up more Space in his Bowels, he often lay down, and immediately started up again, shewing as much Pain and Agony as any Horse could possibly be in.

I advis'd the Gentleman to have him rak'd once more, by a Boy that had a small Hand and Arm; who being satisfied with the Reasons which I gave him, had it done accordingly, tho' it was not without some difficulty, for the Horse shrunk very much, and endeavour'd constantly to lie down. But at last, when he had been thoroughly rak'd, he began to throw out several hard Balls of Dung of his own Accord, and at the same time stal'd a little, whereupon he had the entrance into his Fundament done with Soap, which made him dung very plentifully, and he piss'd so long that the Stable was all afloat about him: After this a Clyster of Broth wherein Beef had been boil'd was given him, with a Handful of Salt and half a Pound of Butter dissolv'd in it, which brought away a great deal of Dung, and abundance of slimy Matter. He eat nothing that Night, which was pretty late, but towards the Morning he began to feed very plentifully, and was quite recover'd of his Indisposition. *R 3* Had

Had this Disorder continu'd upon him a little longer without a Vent to the hard Excrements, which were so firmly impacted in the streight Gut, a violent Inflammation of that Gut, and of the Neck of the Bladder, must have soon happen'd, which, without the utmost diligence, would have brought him suddenly to his End; for in that Case it would have been very difficult to have fetch'd out the Dung, which was the only means to preserve him from those Accidents.

The second. But this will be clearly illustrated in the other Instance, which was of a Dragoon's Horse in the Regiment to which I belong'd; who, after a full five Weeks March, coming to stand at his Ease, grew exceeding costive, and had his Fundament and Sheath very much swell'd.

He was committed to the Care of one who was tolerably well skill'd in many of the common things, but being wholly unacquainted with the Structure and Mechanism of that Creature, who was the Subject of his Art, committed a grand Mistake, in giving him a strong Dose of purging Physick; there being no Vent for the Passage of the Excrements downwards, and the Horse having no Capacity to vomit and disgorge himself upwards, was put into the most violent Agony imaginable, and at last dy'd in strong Convulsions.

Perhaps this Person may, by such a Method, have succeeded in Cases of less obstinacy, and where there was little or no swelling of the Fundament; and if there had been a possibility of making the Horse vomit, he might have succeeded even in this, for then the Physick would have gone off that way; and after several Discharges by the Mouth, the remainder might have gone downwards, as it oftentimes happens to human Bodies, because the straining to vomit, makes a strong Compression of the Muscles of the lower Belly, which greatly forwards the Ejections by the Fundament; and therefore in some obstinate Cases of this nature, the best Physicians have order'd Vomits with Success. But as it is quite otherwise with Horses, and that their Stomachs are not otherwise to be mov'd with the strongest *Stimuli*, than to create Sickness, and cause them to flaver a little, Purging is not to be attempted in any stubborn Costiveness, but Clysters.

And if this Method had been taken in the Instance now before us, and due Care observ'd to keep the Swelling of his Fundament under, as he was a young Horse, and not much impair'd in his Strength, he might have easily overcome that Disorder.

C H A P. XXXVII.

Of the Lax, or Scouring.

FOR the better understanding of those Disorders, we shall rank them under four different Kinds. We have elsewhere observ'd, that when the Excrements have lain some time in the Guts, the Juices, by their Putrefaction, turn sharp and corrosive; and by that means stimulate the Intestines, to shake off what is contain'd in them. But this does not always follow such a Stagnation of the Excrements, as may be observ'd from what has been said in the preceding Chapter; for sometimes, before such a Discharge can happen, a Horse will be endanger'd of his Life; and therefore we may reasonably ascribe this Difference sometimes to the different Constitutions of Horses, and sometimes to the Difference of their Food, there being some kinds more liable to Corruption than others. But however that be, it is very certain that the Lax and Scouring in Horses is oftentimes the Effect of a preceeding Costiveness; and therefore we shall account this, and all critical Loosenesses which tend to the Solution of any Disease, to be of the first Kind.

*Divers Kinds
of Loosenesses.*

The second kind of Looseness, is that which proceeds chiefly from want of Digestion; for by that means a Scouring may happen, without any previous Symptoms of Costiveness; and when it is so, a Horse suddenly falls away and loses his Flesh, and likewise his Appetite; but this may be further known by the Discharge, for many things that he eats will come away whole, and his Dung will be full of Shreds of Hay, and sometimes accompanied with slimy Matter.

Thirdly, A Looseness and Scouring often happens when the Pores of the Skin, the Urinary, or other Discharges, are obstructed; for by that means, when the excrementitious Parts of the Blood have not a free Vent thro' the common Passages, they are deriv'd in a more than ordinary Quantity into the Aperture of the Guts, but particularly in the Gall-pipe and *Pancreatick Duct*; so that they may be of different Colour and Consistency, according to the predominancy of the Juices that flow into them. When most of it is deriv'd from the intestinal Glands, the Matter will be clear and watry, or clear and glassy, not unlike that which *Solleysell* observes in this third kind of Colick; but when it proceeds mostly from the Gall-pipe and *Pancreatick Duct*, it will

be then tinctured with a yellowish Colour, and if there happens to be a very great quantity of the Gall discharged with the Excrements, whatever is voided from the Fundament, must of Consequence be of a deep reddish Colour, and is the same which the abovemention'd Author terms the red Gripes, which constitutes his sixth kind of Colick.

Lastly, A Lax or Scouring sometimes happens from viscous slimy Matter hindring the *Chyle* from entring into the lacteal or milky Vessels; and in this Case the Excrements are usually of a pale, light Complexion, as they consist chiefly of *Chyle*.

But all these are only different Species of a *Diarrhoea*. *Molten Grease*. *arrhoea*; and when the Scouring is large, as it happens to some full-body'd young Horses, a white greasy Matter like Fat comes away in the Dung, and this is what Farriers call *Molten Grease*, which is of the same nature with the greasy *Diarrhoea*, which sometimes happens to Men of gross Habits, as well as to Horses, and seems to be occasion'd when the Glands of the Intestines are more than ordinarily open'd, whereby that Matter is evacuated from the Blood into the Guts, which should otherwise be deposited among the Fat.

The Cure of a Lax or Scouring But in order to the Cure it ought to be observ'd, that in all those Scourings that are of the first kind, and are only the critical Discharges of some Disease; there are seldom or never any bad Accidents attending them, unless the Disease has been of such Continuance as to waste and attenuate the Body; and therefore when the Sickness abates by any such Discharge, the best way is not to be over hasty to stop it, but it ought rather to be encouraged when it proves imperfect; and that must be done by Medicines that are moderately purging. But because all Discharges that proceed from the Intestines may degenerate into the worser sort, Care ought to be taken not to let it run on too long, but be it may stop'd by the Methods hereafter laid down for the Cure of the other Species of a *Diarrhoea*; we shall therefore proceed to the next kind, where a Horse loses his Appetite; and when the want of Digestion is manifest from an imperfect Communication of the Dung, that is, when some Part of the Food comes away whole as it is eat.

In this Case all those Things that we have already laid down for strengthening the Stomach are to be us'd, for which purpose we also recommend the Use of *Diapente*, to those that like it; but it is not one Dose that will answer the End, but it ought to be repeated every Day, and

so must any other Stomachick Medicine, before any extraordinary Effect can be wrought.

And because this Disease is both in the Stomach and Guts, the following Clyster may be given as soon as you perceive him begin to recover his Appetite, unless the Looseness begins also to abate with the other Symptoms, and in that Case it may be let alone.

“ Take of Red-Rose Leaves two Handfuls, the Roots of Gentian and round Birthwort, of each one Ounce, Gallangal half an Ounce, Bay-berries, Aniseeds, and Fennel-seeds, of each two Drams. Let the Roots, and other hard ingredients, be bruis’d; afterwards boil the whole in three Quarts of Water for the Space of half an Hour; or let them be infus’d four Hours in boiling Water; then pour off the Liquor, and dissolve in it three Ounces of the Oil of Rue, which must be injected into the Horse’s Fundament lukewarm.”

This may be repeated once or twice, but if the Looseness still continues, and the Horse grows weak, it is a very bad sign, especially if he refuses to feed.

The next kind is that where the Excrements *The Cure of the* are tinged yellow, or of a deep reddish Colour, *second kind of* proceeding, as we have observ’d, from a too *Looseness.* great Profusion of the Gall and Pancreatick Juice, &c.

In this a Horse may be first of all purged with the following Drench.

“ Take Red-Rose Leaves two Handfuls, Monks Rhubarb four Ounces, *Turky* Rhubarb three Ounces. Let these be sliced and boiled with the Rose Leaves, in three Pints of Water, for the space of one Hour; and in the strained Decoction dissolve an Ounce and half of Diascordium.” Or this:

“ Take of the best Rhubarb, in Powder, two Ounces, Cream of Tartar one Ounce, Diaphoretick Antimony half an Ounce. Let this be given in a Pint of red Wine.

If the Horse be of small Value, two Ounces of the *Pulvis Cornachini* may be us’d, which the Reader will find prescrib’d in a preceding Chapter, and to it may be added half an Ounce more of Diaphoretick Antimony; for after Purg- ing has been once or twice repeated, those Medicines which promote Sweat, and the other Secretions, are to be us’d, as they make a Revulsion, and consequently lessen the Discharges by Dung; wherefore we recommend Diascordium, Mithridate, and *Venice-Treacle*, or *London-Treacle*, which may be exhibited in the following manner. “ Take

" Take Treacle-water one Pint, Venice-Treacle, or Mithridate, two Ounces. Let the Mixture be stirr'd well about, and given through a Horn." Or this :

" Take one Handful of Water-Germander, Red-rose Leaves and Rue, of each half a Handful, *Virginia* Snake-weed and Scorzonera, of each two Ounces. Boil them in a Quart of Water half an Hour, and to the strained Decoction add two Ounces, or two Ounces and a half of Diascordium." Or,

" Take of Diascordium three Ounces, dissolve it in a Decoction of Red-rose Leaves, and give it through a Horn; two Ounces of Venice-Treacle, or Mithridate, or three Ounces of London-Treacle, may be given in the same manner, taking Care at the same time to keep the Horse well cloath'd, and to have him often comb'd and rubb'd, to open the Pores, the better to promote Sweat and insensible Transpiration.

The following Drench may also be given with good Success, to astringe and dry up the Stomach and Bowels, &c.

" Take Rose-water and Plantain-water, or a Decoction of Red-rose Leaves and Plantain one Quart, Treacle-water half a Pint, Armenian Bole and Sealed Earth, or Lemnian Earth, of each half an Ounce. Dissolve in the Mixture two Ounces of Diascordium, and of Roch-Allum six Drams.

This must be repeated two or three Days successively, and unless the Scouring be very violent, it will certainly put a stop to it.

But the Farrier is to observe, that if a Horse has a Fever upon him, which does not diminish, but increases with the Looseness; those Things which act more immediately upon the Bowels are then to be made use of; therefore the Clyster prescribed in the preceeding Chapter, to remove violent Pains in the Guts, may be injected; or the following, which will yet be more efficacious in this Case.

" Take of Guaiacum half a Pound, Sassafras four Ounces, boil them in four Quarts of Smiths Water, wherein they quench their hot Irons, until one half of the Water be consum'd; then add to the Decoction Red-rose Leaves, the Tops or Leaves of Briar, and the Leaves of Bramble, of each a handful; or instead of these, two handfuls of Plantain, and when it has boil'd a quarter of an hour longer, take it from the Fire, and in the strain'd Decoction dissolve four Ounces of Diascordium without Honey, and of Opium half a Dram." Or this : " Take

"Take Henbane and white Poppy-feed, of each four Ounces, Red-rose Leaves two Handfuls, Pomegranate Bark two Ounces. Boil them in two Quarts of Smiths Forge-water to three Pints, dissolve in it four Ounces of Diascordium, or three Ounces of Mithridate, or Venice-Treacle, and half a Dram of Opium." Or the following may be us'd in haste, or for a Horse of small value.

"Take a Quart of the foresaid Water, warm it over the Fire, and dissolve in it two Ounces of Diascordium, and the like quantity of Roch Allum.

These Clysters are always to be made in a lesser quantity than those that are purging; and the Horse's Tail to be kept close to his Tuel, that he may retain them as long as possible; and as soon as he flings out the first, which perhaps may not be in the space of twelve Hours, it must be follow'd with another, and so on, until the Looseness is quite stopt, which may easily be done by the Help of these Clysters, unless his Strength be quite wasted, and that he has lost all Sensation in his Bowels.

We come now to the Cure of the last sort *The last Kind of Scouring, how cur'd.* of Scouring which we mention'd, to wit, when the Chyle is discharg'd with the Excrements; and as this Indisposition proceeds from slimy Matter obstructing the Passages in the lacteal Vessels, the properest Method is by Purging, for which purpose we recommend the following.

"Take *Epsom* Salts six Ounces, Cream of Tartar two Ounces, dissolve them in a Gallon of Water, and give the whole through a Horn at several times." Or,

"Take *Epsom* Salts six Ounces, Cream of Tartar three Ounces, Salt of Tartar half an Ounce. Dissolve them in a plentiful deal of Water, and let them be given as the other."

Let Salt of Tartar and *Sal Prunellæ* be also dissolv'd in his common Drink, for all those Diluters are the most proper to wash off that viscid Matter which adheres so closely to the Guts, and hinders the Chyle from entring into its proper Vessels, especially when they are us'd plentifully; but if this sort of Flux should proceed from a stumous Obstruction, as it sometimes happens to human Bodies, it would prove incurable.

As to that which Farriers call *Molten Grease*, it being, for the most part, the Concomitant of every large Scouring, that Symptom generally wears off in the process of the Distemper, and requires no particular Management distinct from

from what has been already prescrib'd for the third sort of Looseness, *viz.* Purging and astringent Clysters, with the Assistance of those things that are proper to promote a Breathing thro' the Pores; but because in all violent Disorders of the Guts there is, for the most part, a weakness in the Stomach also, it can never be amiss to exhibit such things as are proper to procure a good Digestion, at the same time that other Means are us'd to carry off the more urgent Symptoms; and these ought to be continued, especially to a Horse of Value; and indeed it is for want of such Helps that many Horses dwindle away, or fall into other Distempers, after the Looseness has in a great measure been overcome.

Concerning the Food that is to be given in such Disorders, nothing can be more proper than what *Solleysell* recommends, *viz.* the cleanest and best Hay, Bran moisten'd with Claret, and parch'd Barley. But as all these Disorders have their primary Cause from Colds, ill Usage, but especially from foul corrupt Feeding, and want of Exercise, the Owner can never be at a loss to keep an Eye over his Horse, and to learn his Constitution, and what he is able to bear, and by that means these Accidents may, in a great measure, be prevented.

C H A P. XXXVIII.

Of the Bloody-Flux.

A Bloody-Flux. **T**HIS is only an advanc'd Degree of a *Diarrhœa*, especially of that Sort which proceeds from a Profusion of the pancreatick and bilious Juices; for when the Discharge from those Parts is very much enlarg'd, it causes still a greater Influx of Blood and Humours towards them, which being more than can be converted into the proper Juices, forces itself through the Intestines of the Vessels, and is discharged with these Juices into the Guts.

*Its different
Appearances.*

Sometimes it resembles the washings of Flesh, sometimes there is a Mixture of purulent Matter or Corruption along with it, and sometimes little or nothing comes away but pure Blood; but this last kind proceeds, for the most part, from an Appetite of the internal *Hemorrhoidal* Vessels.

But it is to be observ'd, a Bloody-flux very seldom happens to Horses, insomuch that *Solleysell* has given it no Place

Place among other Diseases of the like Nature, and for my own Part, I cannot say I have ever seen Blood come from a Horse's Fundament, otherwise than by the Pressure of hard Dung upon the great Gut, which by that means has only squeez'd out a very small quantity from the Vessels thereof; yet because that Distemper may, without doubt, seize some Horses, as it is not inconsistent with the Oeconomy of that Animal, and as most Authors I have perus'd, besides *Solleysell*, aver, they have met with it in all its different Appearances, I shall therefore give such Directions as are necessary for the Cure.

And in order thereunto, because a Bloody-flux happens, for the most part, before *The Cure.* the Body has been very much wasted by the Looseness, it is proper, in the first place, to make a Revulsion by taking a moderate quantity of Blood from the Neck-vein. This is convenient in all Fluxes of Blood from the inferior Parts, unless the Horse be exceeding weak.

If there be a Mixture of purulent corrupt Matter after Bleeding, moderate Purging will be very proper, with such Things as have been prescrib'd in the preceeding Chapter; all the other Medicines recommended to make a Revulsion by Sweat and insensible Transpiration, are also to be comply'd with; as also the astringent Clysters there recommended, which in most Cases will answer the End, I shall therefore only add one more.

"Take a Quart of Forge-water, and boil in it four Ounces of Oak-bark, two Ounces of Tormentil-Roots, Ba-laustines and Red-rose Leaves, of each a Handful. To the strain'd Decoction add three Ounces of Diascordium, one Ounce of Mithridate, and half a Dram of Opium. Let this be injected warm, and repeated as often as there is Occasion; and if you be provided with a Syringe that has a pretty large Pipe, you may sometimes add two Ounces of Bole in Powder, or sealed Earth."

But above all things, you are to avoid mixing Oil or Butter, or any other greasy Matter, with Clysters that are of this Intention, as is common among Farriers; for these things are directly contrary to the Nature of those Applications, and will not only render their Operations ineffectual, but increase the Disease; and instead of astringing and fortifying the Bowels, will weaken them, by causing a greater Relaxtion of their Fibres.

C H A P. XXXIX.

Of Worms, Bots, and Trunchions.

Worms of divers Kinds bred in Horses.

THERE are several Kinds of Vermin bred in the Bodies of Horses, which go under the Denomination of Bots, Worms, and Trunchions. The Worms are of divers Colours and Shapes, some resemble Earth-worms, others are small and white, sharp at both ends like Needles. The Trunchion is thick and short, and the Bot is not unlike a small Caterpillar; the last are commonly found in the straight Gut, especially of some Horses when they are first taken from Grass.

Solleysell has taken notice of another Kind, which resemble Wood-lice, only that they have fewer Feet, are of a deep reddish Colour, velveted on the Back like a Bot, and made up of several Folds. These, he says, are bred in the Stomach, and abide in it and devour all the Nourishment; so that a Horse, if he be never so great a Feeder, cannot thrive while they are in his Maw. The same Author observes further, That those kind of Worms are oftentimes the occasion of a Horse's Death, by eating Holes in the Stomach; and says, he has seen thousands of them in the Stomachs of dead Horses.

But that Author might be easily impos'd upon by such an Inspection; for it is very certain, as soon as an Animal dies, those Parts that turn first to Putrefaction, as the Aliment in the Stomach, which is kept under close Cover, will soon breed Vermin, and that of different Kinds, since it is reasonable enough to believe, that the Seeds of divers Insects may be deposited among the Food of most Animals, and be thus convey'd into the Stomach, and may be brought to Life very suddenly after the Animal is dead;

No Worms can be bred in the Stomach while the Horse is alive.

but that Worms, or any other kind of Vermin, can either be bred or subsisted in the Stomach of any living Creature, is as impossible as for a Mouse to live under a Mill-stone while it is grinding; for it is very well known, that the muscular Action of the Stomach, by which it is kept in constant Motion, would much sooner destroy any such Creatures, if it was possible for them to breed there, than the common Food which they eat, that being harder and more difficult to be broke than they.

And

And therefore *Markham's* Assertion must be as false as ridiculous, and only taken upon trust, from the Speech of some Mountebank; where, speaking of the red Worms, he says: "He has seen Horses, whose Stomachs have been eaten quite through with them, so that the Meat which they eat could not abide in their Stomach, but fell, upon the swallowing, into the Body, making the Body swell like a Tun, so that they dy'd with huge Torment.

A false Assertion of Markham.

Neither will the Histories we have of Worms being voided at the Mouths of Men and Women, however authentick, avail any thing to prove their subsisting in the Stomach, since it is very certain they have been thrown upwards like the Gall or Excrements in the *Iliack* Passion, when the Peristaltick Motion of the Guts has been very much inverted; and these have been but a very short while in the Stomach before their Ejection.

We may therefore very reasonably affirm, since the modern Discoveries have shewn us the true Use of the Stomach, that this sort of Vermin can only be bred and subsisted in the Guts of any live Animal, and not in the Stomach; and when they are found there at any time, it is either after the Animal is dead, that the Action of the Stomach ceases, or else they are brought into it in the manner we have already mention'd.

All Worms bred in the Guts.

Now the Cause of Worms is from foul Feeding, and very often from a bad Digestion, for that will have the same Effect as corrupt and unwholesome Food. For the Aliment, when it is not sufficiently broke and comminuted in the Stomach, turns to Crudities, and is render'd the more liable to putrify in the Guts, so that a proper Matter is furnished for the Production of Vermin; and therefore we may often observe, that as Children, even so young Horses, are more liable to be infested with Worms, than those that are grown to Maturity. And this may probably proceed from the weakness and flexibility of the solid Parts, whereby, tho' their Appetites are at that time sensible and vigorous, yet the Stomach must act less forcibly upon the Aliment, than when they are arriv'd to a more advanc'd State; so that of consequence they may be render'd more liable to the Production of those Animals.

The Cause of Worms.

The Signs are all those that appear in a Colick, for besides that those Insects occasion

The Signs.

a Titillation in the Guts, the viscid, gross and putrify'd Matter, whereby they are ingender'd, causes a Vellication and frequent Twitches, and withal so much Pain, that a Horse appears to be in all the Agony imaginable, lying down and starting up again by Fits, oftentimes striking his Belly with his hind Foot, and oftentimes rubbing his Fundament against any Wall or Post that happens to be near him; and when there happens to be many of those Creatures, especially when they are harbour'd in the great Gut, they appear plentifully in the Dung.

The Cure. The Cure consists in all those things that are proper to destroy the Viscidities in the Bowels, and at the same time to strengthen the Stomach; for by that means a Horse digests his Hay and Provinder, and nothing but the grosser Parts go downwards into the Guts, so that of consequence those Creatures cannot easily be ingender'd there.

And because Purging is of the most immediate Efficacy in all such Cases, it is therefore the most proper to begin the Cure that way; and for that purpose, if there be no Obstructions in the straight Gut, which may first require the Use of Clysters, we recommend the following.

"Take Tansey Flowers and Coraline, of each a Handful,
"Sena one Ounce, Jalap in gross Powder half an Ounce:
"Boil them in a Quart of Water, and to the strain'd Decoction add two Ounces of Syrup of Buckthorn. Or:

"Take two Ounces of the *Pulvis Cornachini*, or Coun-
"tess of *Warwick's* Powder, and give it in a Decoction
"wherein Rue has been boil'd. Let your Horse be kept
from feeding two Hours before and two Hours thereafter,
giving him moderate Exercise to help the Operation of the
Physick; and at Night he may have scalded Bran to eat.

But these are the properest Purges to destroy Worms and wormy Matter, that have *Mercurius Dulcis*, or *Æthiops Mineral*, join'd with them, as follows:

"Take of the best Aloes one Ounce, *Mercurius Dulcis*
"half an Ounce, Diagridium two Drams. Make these
"into a Ball with Liquorice Powder or Flour, and as
"much Butter as is sufficient." Or thus:

"Take of the best shining Aloes one Ounce and a half,
"Æthiops Mineral one Ounce, Diagridium and Dia-
"phoretick Antimony, of each two Drams. Make them
"into one or two Balls, as above directed, and let them
"be given fasting.

Either

Either of these being three or four times repeated, will destroy all manner of Worms, and carry off that slimy and corrupted Matter in which they are ingender'd, and without the least Danger.

The *Mercurius Dulcis* may be had at any Chymist's or Apothecary's; as for the *Æthiops*, it is made of equal Parts of Quicksilver and Brimstone, rubbing them in a Mortar till they are incorporated and turn to a black Powder.

After your Horse has been sufficiently purg'd with one or other of the abovemention'd Remedies, the following Powder, out of *Solleysell*, may be given for a Week or a Fortnight, and it will be of great Service to destroy all the Remains of the Distemper.

“ Take the Roots of Masterwort, the Leaves and
“ Roots of Radishes, greater Centaury, and Tansey, dry
“ them in the Sun in the Summer; and in an Oven, with a
“ moderate degree of Heat, in the Winter; then take a
“ Pound of each Germander, Ground-pipe, Roots of Angelica, and Elicampaign, all dry'd in the Shade, of
“ each half a Pound, Coraline, or Sea Moss, and Liver
“ Aloes, of each four Ounces, Gallangal, Nutmeg, and
“ *Sal Prunellæ*, of each two Ounces. Reduce all the
“ Ingredients to Powder separately, then mix them, and
“ keep them in a leathern Bag, or in a glass Bottle close
“ stoppt. The Dose is an Ounce for small Horses, two
“ Ounces and a half for large Horses; mix it with half
“ an Ounce, or three Drams, of old Treacle, or an Ounce
“ of Treacle *Diatefferon*, or Mithridate; then give it the
“ Horse in a Pint of White-wine, and afterwards walk
“ him in his Cloaths.

But this Powder will be much better if the first Ingredients be wholly left out, and instead of them be substituted four Ounces of the Flour of Brimstone, and two Ounces of the Powder of Myrrh; neither is there occasion to be much scrupulous about the Dose, for the smallest Horse may take two Ounces of this Powder, and it will be little enough.

There are many other Remedies appropriated to destroy Worms, which are all very good, when rightly apply'd, as Rue, St. John's Wort, Tops of Broom, Male Fern, Savin, Citron Seeds, Wormwood and Wormseed, Garlick, Onions, and such like things, but none can come up to *Mercurius Dulcis*, or the *Æthiops Mineral*, for immediate Efficacy.

Most Farriers, for cheapness, make Use of Allum, black Soap, burnt Vitriol, and such like Things; some exhibit corrosive Sublimate, or red Precipitate, as much as will lie upon a Silver-Penny; but as these last Medicines, viz. the Sublimate and Precipitate, cannot be us'd internally without great Danger, especially to brute Creatures, who can never be brought to take such things as are proper to carry off their ill Effects, they ought therefore not to be given in any Case; for albeit they may, by virtue of their powerful Efficacy, succeed in some Circumstances, where a Horse happens to be robust and strong; yet when it is otherwise, if they are not the Occasion of a sudden Disorders, they will lay the Seeds of a bad Constitution, and render a Horse unserviceable for the future.

C H A P. XL.

Of Pain in the Bowels caused by sudden Accidents.

WE have already taken notice that most of the Diseases of the Guts will cause Colick Pains, when they come to an Extremity; but Horses, who are oftentimes under the Direction and Management of bad Tutors, and are themselves only guided by Instinct, must therefore be render'd liable to many Inconveniencies, and to none more than those which shew themselves immediately in the Bowels; for the drinking cold Water when a Horse is hot, or if at that time he be rid deep into the Water, or if he be suffer'd to cool of a sudden when he has been at hard Exercise, any such Mismanagement very frequently brings on the most intolerable Disorders, as we daily observe.

*Pains caused
by drinking
when hot, &c.*

And this is easy to be accounted for, because when the Body is hot, and the Pores open, any sudden Cold causes them to be immediately shut up, so that all the common and necessary Discharges are in a great measure hinder'd, by which means the Vessels of the *Colon*, and sometimes of the Stomach and other Bowels, are also cramm'd and distended; and this is the true Cause of the Pain, and likewise of the Wind and Flatulency that is observable in such Cases; for although Wind may often proceed from other Causes, as from the Viscidity and Sliminess of the Matter that is sometimes harbour'd in the Bowels; yet in
this

this Case it is chiefly occasion'd by their overgreat Relaxation, whereby they lose their Tone and *peristaltick* Motion, which is absolutely necessary to the Expulsion of the Wind as well as the Excrements.

As for the Signs of these sudden Disorders, they are sufficiently known to every one; we shall therefore proceed to the Cure.

And first of all, if the Horse be hot and feverish, as it sometimes happens, a moderate Quantity of Blood may be taken from the Neck-vein, after which a Clyster ought to be injected, and such a one as will stimulate the Guts, and promote their peristaltick Motion, for by that means the Excrements and Wind will not only be ejected, but the stagnant Blood must also be forwarded, for which Purpose nothing can be more serviceable than a Quart of Emetick Wine given lukewarm; but because this is not to be had without Expence, it would therefore be worth any Gentleman's while to make it, and keep it by him, and that is easily done, only by infusing four Ounces of the *Crocus Metal-lorum*, or Liver of Antimony, in a Gallon of White-wine or Ale, for several Days, which will give it an emetick Quality.

*The Cure of
those sudden
Disorders.*

But instead of the emetick Wine, the following Clyster may be used.

"Take of the Decoction of Mallows and Marsh-mallows, or of Broth that is not too fat, two Quarts, dissolve four Ounces of Syrup of Buckthorn, and two Handfuls of common Salt." Or this:

"Take two Quarts of warm Water, and dissolve in it half a Pound of *Epsom* Salts, and two Handfuls of common Salt." Or the following:

"Take of the Decoction abovemention'd two Quarts, Aloes in Powder two Ounces, Gambuge one Ounce. Let these be stirr'd into the Decoction when it is about Blood-warm, adding at the same time a Handful of bay Salt, or common Salt.

Let either of these be given, taking Care to keep the Horse moving until the Operation is quite over; and this Method will be the more necessary if the Horse has been full fed; but if it be otherwise, that he was empty when this Accident happen'd to him, a Clyster of Broth, or of the emollient Herbs and brown Sugar, or Molossus, will suffice.

After the purging Clyster has finish'd its Operation, Sweat ought, as soon as possible, to be promoted, and that very plentifully; wherefore,

"Take of old *Venice-Treacle*, or of Mithridate, three Ounces, *Matthews's Pill* two Drams, Camphire six Grains: Mix them well together, and then dissolve them in a Quart of warm Beer, and give it thro' a Horn, cloathing him very warm."

And to comfort his Bowels, the Clyster prescrib'd in a preceding Chapter to ease violent Pains in the Guts, may be given, or the following, which is of like Efficacy, and will also help to promote the Sweat.

"Take Red-Rose Leaves two Handfuls, dry'd Mint and Sage, of each one Handful, Gallangal bruis'd one Ounce, Bay-berries six Drams. Boil them half an Hour in three Pints of Water, and to the strained Decoction add Spirit of Wine or Brandy one Pint, and also dissolve in it four Ounces of Diascordium. Let this be given Milk-warm, keeping his Tail close to his Fundament until he has no Motions of throwing it out.

But a Horse is sometimes so restless with the Violence of those Pains, that there is no keeping him on his Legs, but he throws himself down every Minute; and some Horses kill themselves, by striking their Heads against the Walls, who otherwise might easily be recover'd if they could be manag'd. These ought to be buried in a Dunghil, all but the Head, there being no Case that requires that kind of Sweating more than this; for it is very much to be suspected, that the giving of cold Water to a Horse when he is hot, and washing him about his Breast and Belly, may often cause an immediate Foundering in the Chest, and this seems reasonable enough from the extraordinary working and heaving of the Flanks, which is observable all of a sudden in some Horses after such Accidents. But the Reader may have recourse to what has been already said under that Head.

CHAP. XLI.

Of the Yellows or Jaundice.

The Nature of the Yellows, and its different Causes.

THERE is no Distemper that happens more frequently to Horses than the Jaundice or Yellows, and proceeds from the Obstructions either in the Gall-pipe, caused by

by Slime or gritty Matter, or when the Roots of those little Ducts that open into that Pipe are stop'd by the like Matter, or compress'd by a Plenitude and Fulness of the Blood-vessels that lie near them.

Sometimes that Distemper proceeds from or accompanies hard and schirrous Obstructions in the Liver, and sometimes the Blood will be tinctur'd in malignant and pestilential Sickneses, as the Disease mention'd by *Solleysell*, which he terms the *Spanish Evil*, and which he observ'd to be predominant among the Horses in his Time, for several Years together, and to many prov'd mortal; sometimes the same Symptoms will also happen upon the Bite of an Adder, or any other venomous Beast.

In these last Cases of Poison and Infection, the Liver no doubt is inflam'd and swell'd, and by that means bears its proportion, from which the yellowness no doubt happens; but as this is only a Symptom, which may be remov'd by all those things that are proper to carry off the Fever; and as we have already laid down such Methods as are proper in Cases of Malignity, we shall only here consider it as any other Secretion that is obstructed, and provide such means as are proper to open the said Obstructions.

When the Gall-pipe, or rather when the Roots of its common Ducts are any ways stop'd up, the Matter which should be converted and turned into Gall, is taken up by the Veins, and carry'd back again into the Mass of Blood, giving it a yellow Tincture; so that all the Parts of a Horse that have a Capacity of shewing the Colour, as the Eyes, the inside of the Lips, and even the Slaver from the Mouth, will appear yellow. But as this Disease is contrary to that sort of Scouring where there is a Profusion of the Gall, and there being little or none of it transmitted into the Guts, the Excrements will therefore look of a light pale green, as if the Aliment was only washed in the Guts.

It is also to be observ'd, when a Horse has the Yellows, he turns dull, heavy and sluggish, low in his Spirits, and faint, especially when he is put to the least Exercise; and when the Distemper has continued some time upon him, he loses his Appetite, and becomes poor, lean and jaded.

While the Obstructions are only in the Gall-passages, it is easy enough to be cur'd; but when the Liver is indured, and harden'd near those Passages, as it sometimes falls out; or if there happen Impostumations or Ulcers, the Cure will then be very doubtful; for in this last Case it will have all

the same Effects as any other internal wasting Ulcer: And in the other Case, where the Liver is schirrous and hard, these Obstructions must also be difficult, because they lie out of the reach of manual Operation, and also of external Applications.

The Cure. But in the Cure, we shall begin with its first Stage, when we only suppose the Gall-passages obstructed as abovemention'd; and to remove those, Purging must, in the first place, be necessary, with those things that are moderately opening, for unless there be Pain and Inflammation in the Liver, Bleeding will do but little Service; however, it is much in vogue in such Cases.

Therefore let the following Infusion be made, *viz.*

" Take of Sena one Ounce, Madder Roots and Turmeric of each half an Ounce, the Leaves of Strawberries, Mallows and Marsh-mallows, of each one Handful, Salt of Tartar three Drams. Let them be infus'd in three Pints of boiling Water all Night, and in the Morning let it be given with the usual Precautions. This Infusion will just keep the Horse's Body open, and may therefore be repeated four or five Days successively.

Or instead of this, the Horse may be purg'd three or four times with an Ounce, or ten Drams of the best Aloes, and half an Ounce of Turmeric made into a Ball, which, to a Horse of small Value, may be done with less Trouble.

After Purging in the manner we have prescrib'd, the Horse may have now and then a little scalded Bran, and sometimes boil'd Barley to eat, and his Water may have constantly Barley and Liquorice boil'd in it; and a Dose of the following Powder may be every Day given for a Fortnight or three Weeks together, unless the Purging alone remove the Distemper, as it sometimes happens in the beginning.

" Take of the Roots of Madder and Turmeric, of each half a Pound, Earth-worms dry'd in the Sun, or in an Oven that is but moderately heated, and Myrrh, of each four Ounces, shavings of Hartshorn or Ivory, and crude Tartar, of each two Ounces, crude Antimony six Ounces, the best Saffron and Cinnamon, of each two Drams." Let all these be made into a fine Powder, and give your Horse every Morning two Ounces in a sufficient quantity of *Venice-treacle* to make it into a stiff Paste, letting him at the same time drink a little White-water or Barley-water to wash it down.

I have been told that the following Receipt seldom or never misses to carry off the Yellows before it be of an old stand-

standing ; and if it succeeds, as I have reason to credit my Informant, it is a very easy way of making a Cure.

“ Take of Castile Soap one Ounce, cut it into Slices,
 “ and dissolve it in two or three Spoonfuls of Whey, or
 “ any other Liquid, after that mix with it two Ounces of
 “ live Honey and Powder of Turmerick, as much as will
 “ make it into two, and after you have dipt them in sweet
 “ Oil, give them to your Horse, letting him fast two
 “ Hours before, and two Hours thereafter.

This must be repeated every other Day for a Week at least. But in this Case the use of Chewing-Balls, or the champing on green Juniper-wood, Horse-radish, or any such thing that will be of efficacy to rouse his Spirits, must needs be of great service to him, and he ought also to have every Day Exercise given him, in proportion to his Strength and Ability ; for nothing can conduce more to assist the Medicines in their Operation.

But when the Yellows proceed from stony *An inveterate* and hard Obstructions in the Liver, which, *Jaundice.* if they be large, may easily be discovered, because they will render him liable to Pain and Inflammations, especially upon the least Exercise ; and you may observe him under great Oppression, and he will often turn his Head towards his right Side. In that Case he must be bled, and moderately purg'd with the Infusion above describ'd ; after which the following Fomentation may be used.

“ Take of the Leaves of Mallows and Marsh-mallows,
 “ of each four Handfuls, Wormwood and Camomile, of
 “ each two Handfuls, Leaves of Bawm, and Flowers of
 “ Melilot, or such of these as can be had, of each one large
 “ Handful : Boil them in a Gallon of Water, and add
 “ to it a Pint of Spirit of Wine.

The properest way to use this, is by dipping woollen Cloths into it, applying it pretty warm and often to the Part affected.

If this Symptom does not wear off in a little time, it will soon cause the Horse's Death ; but if that is removed, and the Horse still continues yellow ; or if the Distemper has continued obstinate and immoveable, notwithstanding all the proper Means have been used, recourse must then be had to Medicines of a more powerful efficacy, for which purpose we recommend the following Purge.

“ Take of Aloes one Ounce, Myrrh and Turmerick, of
 “ each half an Ounce, *Mercurius Dulcis* three Drams, or
 “ half

“ half an Ounce of *Æthiops Mineral*. Make them into
 “ Pills with a sufficient quantity of Flour and Butter.

These may be given twice a Week, or according as you find he has Strength to bear them, until he has been scour'd four or five times; after which *Cinnabar Pills*, or those for the *Farcin*, may be given, and their use continued for some considerable time (if your Horse be worth the Expence) but especially if you observe him rather to mend than grow worse. And this Method, when it is rightly follow'd, will be found the most rational to remove all obstinate Diseases of the Liver.

CHAP. XLII.

Of the Diseases of the Reins or Kidneys, &c.

WE find in the Books of Farriers an Account of all the Diseases of the Reins and Bladder, tho' there are but few who have deliver'd them in any regular Order; and, indeed, some of them, as the Stone in the Bladder, &c. are but seldom met with; we shall therefore make it our Business to spend as little of the Reader's Time as possible, in things that are common and unprofitable. However, we make no doubt but some rare and unusual Instances of Stones and Slime happen to those Creatures, yet the most common are only those that proceed from Costiveness, from an Inflammation or Ulceration in the Kidneys, or some Defect in the Bladder, or in the Urine itself; what relates to the Pain or Stoppage of Water caused by Costiveness, has already been discuss'd under that Head; and as it is not to be accounted a Disease in those Parts, but only a Symptom of another Disease, and is removed as soon as that ceases; we shall therefore in the ensuing Chapter only consider a Stoppage or Painpiss in the latter Sense, when the Disease is confin'd to the Reins and Passages of the Urine.

CHAP. XLIII.

Of the Painpiss or Strangury.

THO' this Disease happens most frequently when there is an Obstruction of the Dung harden'd and indurated in the straight Gut, as we have observ'd; yet when it proceeds from another Cause, it is most likely to be occasion'd either by an Inflammation of the Bladder, or an Ulcer in the Kidneys;

Kidneys; for when there happens to be an Ulcer in those Parts, the sharpness of the Matter proceeding from thence, may, no doubt, cause Pain, when it passes into the *Urethra*, or Piss-pipe, by abrading and carrying off the *Mucus* that should defend that sensible Part, so that a Horse in this Case must piss in Pain; and as this will also cause an Inflammation there, instead of pissing freely, he will often dribble.

An Inflammation in those Parts, arising from any other Cause, as hard Riding, too long a Detention of his Urine, has generally the same Effect; but an Inflammation of this kind happens the more readily if there be a Lentor of the Dung.

To remove all such Disorders, it will be necessary to give emollient softning Clysters made of a Decoction of Mallows, Marsh-mallows, Mercury, Camomile, and the like, with a mixture of Oils and other slipperythings, or Clysters made of fat Broths; and to make them a little purgative, common Treacle or Manna may be dissolv'd in them, to the quantity of six Ounces, or half a Pound.

The Cure.

Half an Ounce of *Sal Prunellæ*, or purify'd Nitre, may be dissolv'd in his Water for two or three Days together, or two Ounces of crude Tartar may be boil'd in it; and among his Provinder may be mixt the Leaves of Straw-berries, Radishes, and Turnip-tops.

But if after hard riding you have reason to suspect an Inflammation in the Kidneys, the Bladder, or Urinary Passage, which must at the same time be accompanied with feverish Symptoms, it will then be very proper to take Blood from the Neck-vein, and the use of the Clysters may be repeated as often as you shall see occasion; but if you have reason to fear an Ulcer in the Kidneys, in that Case all cleansing balsamick Medicines are to be comply'd with, for which purpose we chiefly recommend the following Balls.

“Take Gum Benjamin half a Pound, clean Antimony in fine Powder four Ounces, Flour of Brimstone six Ounces, Seeds of Fenugreek and crude Opium, of each an Ounce, Salt of Tartar two Ounces; pound these in a Mortar, adding as much Spirit of Turpentine as is sufficient to make them into a Mass; form them into Balls weighing two Ounces each, one of which may be given every Morning, an Hour before watering time.” Or the following:

“Take Turpentine one Pound, boil it in Water till it be brought to the Consistency of Shoemakers Wax.” Give your Horse the Quantity of a large Walnut dipt in Oil, or moisten'd with Butter, and continue its use for some time.

C H A P. XLIV.

Of a Flux of Urine, and staling of Blood.

AN immoderate Flux of Urine happens when the *Serum* of the Blood is too much attenuated and thin, or when the Pores of the Skin are too much constringed and shut up, or when the Renal Ducts, *viz.* the small Canals that open into the hollow Part or Bason of the Kidneys, are too much extended and dilated, whereby the *Serum* is separated in an over-great Quantity from the Kidneys.

The first, to wit, when the serous Parts of the Blood are too much attenuated, is for the most part caused by travelling in hot Weather, or eating hot and spirituous Herbs in the beginning of the Grass Season; and we have already observ'd, that the Pores of the Skin are most ordinarily obstructed and shut up by riding in the Night-Fogs, or exposing a Horse to the Cold when he has been over-much heated: And the Renal Ducts may be dilated and extended by eating Snow with the Grass in Winter, which is said to abound very much with Nitre; or it may be caused by drinking over-much Water of any kind, especially when a Horse is put to hard Exercise, for by that means it suddenly precipitates and falls downwards in an over-great Quantity into the Reins, so that the abovemention'd Ducts become widen'd beyond their usual Dimensions.

*The Cause of
staling of Blood.*

After this it will not be difficult to understand how a Horse comes to stale Blood, for albeit Blood may sometimes proceed from an Ulceration of the Kidneys, when they are wore and abraded by Sand or gritty Matter, or by the acrimony and sharpness of the Corruption that proceeds from the Ulcer; yet the most usual Cause of pissing Blood happens when the Renal Ducts have been over-much distended by any of the Causes abovemention'd, and Blood, for the most part, follows a too great Profusion of the Urine, tho' this is very seldom attended unto by Farriers.

The Cure:

As to the Cure, whether there be only a too great Profusion of Urine, or a Flux of Blood, it is to be perform'd chiefly by Medicines that strengthen and agglutinate, and likewise by such Things as will divert the Humours another way, by opening the Pores: Only in case of Blood, a Vein should by all means be open'd in the Neck or Breast, to make as speedy a Revul-

sion

tion as possible, because this kind of Hemorrhage proves sometimes fatal to Horses, and that very suddenly.

After Bleeding, a cooling Clyster wherein *Sal Polychrestum* or *Sal Prunellæ* has been dissolv'd, will be very convenient. As the following :

“ Take of the Decoction of Mallows and Marsh-mallows two Quarts, dissolve in it three Ounces of *Sal Polychrestum*, or *Sal Prunellæ*, or Salt-petre, four Ounces of Oil or fresh Butter.” Let it be injected lukewarm.

The following Drench may also be given, and repeated for two or three Days.

“ Take Plantain-water one Pint, Treacle-water half a Pint, Japan Earth and Bole, of each two Ounces, Sugar of Lead ten Grains, Diascordium, or Mithridate, three Ounces.” Or the following Balls may be given.

“ Take Gum Tragacanth and Gum Arabick, of each four Ounces, dry'd Liquorice, Seeds of Melons and white Poppies, of each an Ounce, Gourds and Cucumber-seeds, of each half an Ounce, Starch two Ounces : Make them into a fine Powder, and with a Mucilage of Roots of Marsh-mallows and Fenugreek-seeds, let them be formed into Balls weighing two Ounces each.

Let your Horse have one of these Balls Morning and Afternoon an Hour before his Water, until his Urine ceases to be bloody.

But if the Flux of Blood be violent, take two Ounces of Salt or Sugar of Lead, and dissolve it in a Quart of Vinegar or Verjuice, and apply it cold to his Breast, and it will stop it immediately, unless it proceeds from some pretty large Branch of an Artery ; and in that Case, unless the Rupture be in the Urinary Passage, where it may be reach'd by a styptick Injection, it will readily prove mortal.

If your Horse has got a Fever, his feeding must be but very moderate ; if he has no other Accident besides a Flux of Urine, he may be indulg'd to feed somewhat more liberally, and among his Oats may be strew'd the Seeds of Melons, Gourd, or white Poppies ; three or four of the Heads of the said Poppies, with the Seeds, may be cut to pieces and boil'd in his Water, which will give it no disagreeable Taste : You may also give him now and then half a Pint of sweet Oil ; for all those Things are very proper, and they will help to blunt the asperity and sharpness of the Urine ; but Care must be taken not to let him drink too much Water, but rather give it him the oftener, unless it be soften'd in the manner we have directed.

C H A P. XLV.

*Of the Colt-Evil, Shedding of the Seed, and
Mattering of the Yard.*

The Colt-Evil. **T**HE Colt-Evil is a continued Stiffness in a Horse's Yard, and is so call'd, because it is a Disease incident to Colts, and is brought upon them by having full Liberty with Mares, while they are not able to cover them; but the Disease which generally goes under that Denomination in this Kingdom, is no other than a Swelling of the Sheath.

It may be easily cur'd in the beginning, only by bathing the Sheath with some warm Fomentation made of emollient Herbs, &c. as Mallows, Marsh-mallows, Wormwood, Camomile, and the like, with the Mixture of Spirit of Wine; but if you find the Swelling pretty hard, and that there are the Signs of Heat and Inflammation, he ought to be both bled and purg'd, and his Yard ty'd up to his Belly, making a Hole in the Bandage for the Passage of his Water.

Shedding of Seed. The Shedding of the Seed, if a Horse happens to have any such Disease, may be easily known by a Weakness and Debility; but that which the Farriers bring under this Denomination, is but some Weakness of the Reins, occasion'd by a Strain or violent Exercise, or the Solution of a Cold, which is sometimes follow'd by a running at the Yard.

But the Cure is the same, whether it be Seed or only Matter from the Reins, and may be perform'd by once or twice Purgings, and the use of Turpentine Balls, as directed in the Forty-third Chapter; or the use of those strengthening Medicines we have inserted in the preceding Chapter.

Mattering of the Yard. The Mattering of the Yard proceeds sometimes from the sharp frosty Air causing an Ulceration, but chiefly when a Horse has hurt himself by being too eager in covering a Mare; for as the Yard is of a loose and spongy Substance, if it therefore happens to be bruised, it easily becomes sore and ulcerated; and when the Skin is only fretted off from any part of it, from thence does issue a considerable Discharge of foetid stinking Matter, and may be of ill consequence, if due Care be not taken, tho' at first it may be cur'd by Bleeding only, and bathing the Part with warm Spirit of Wine;

Wine; but the best way in using the Spirits, is, to take him out of the Stable, for when these are apply'd to so sensible a Part as the Yard, the smarting Pain will be apt to make him lame himself, unless he has room; but that does not last above one Minute.

If the Ulcer or Excoriation be inwards, which can only be distinguish'd by the Matter proceeding from the Urinary Passage, and not from the Pain in pissing, as the Farriers suppose, from the least Sore upwards, as it is more or less accompanied with Inflammation, will exhibit the same Signs as the Urine passes thro' the inflam'd Part. In that Case the following Mixture may be injected three or four times a Day, and it will soon cure him of that Symptom.

"Take a Pint of Plantain or Rose-water, Venice Turpentine two Ounces, the Yolk of one Egg, Honey one Ounce; mix these together in a Mortar, then pour the Water on them by degrees until they are incorporated." After which add four Ounces of Spirit of Wine, or Brandy, wherein half a Dram of Camphire has been dissolv'd. Put the whole Mixture into a Vial, shaking it as often as you have occasion to use it.

C H A P. XLVI.

Of the Dropsy.

ALL our *English* Authors, and some *Italians*, have enumerated a Dropsy among the Diseases of Horses, and some affirm positively, that they have cur'd it in all its different Kinds; but that which chiefly happens to Horses, is what the Farriers call the Universal Dropsy, and shews itself more or less in all the external Parts of the Body, but especially the Legs and Thighs, as they are the most dependent; and I have myself observ'd in Cases of the Grease, when that happens both before and behind, it generally proceeds from a dropscial Disposition.

The Cause is from all kinds of ill Usage, *The Cause of* but especially from bleeding and purging *a Dropsy.* Horses beyond their Strength; for these unseasonable Evacuations render the Blood languid and slow in its motion, and for want of Spirits, it has not force enough to reach the Passages of the Skin, so as to make the usual Discharge, but its serous Parts burst thro' the small Vessels, and are deposited under the Skin or the fleshy Pannicle.

The

The Signs are, a Lassitude and Weariness, Faintness and difficulty of Breathing, Loss of Appetite, and a Change of a Horse's natural Colour from bay to dun, or from black to a duskyishness, and from white to an ashy Complexion, and the like; his Hair will shed with the least rubbing, and the Pits of your Fingers will remain wherever there is a Swelling. It is moreover to be observ'd, when a dropical Horse lies down, he does not gather his Limbs round together as a Horse that is free from that Indisposition, but because of their stiffness spreads them out at their full length.

The Cure.

Altho' purging to excess is sometimes the Cause of this Distemper, by reason it divests the Blood of its spirituous and balsamick Parts; yet to attenuate the Viscidities of its *Serum*, and to make a Discharge of what is superfluous, Purging must again be made use of; and when that is perform'd with proper Medicines, it is of no small moment in the Cure; but these must be such, as besides their purging Quality, are indu'd so as to communicate warmth and vigour to the Blood, &c. for which Purpose the following is chiefly to be preferr'd.

"Take of Jalap one Ounce and a half, Gamboge two
"Drams, Seeds of Dwarf-elder two Ounces, Ginger and
"Nutmegs, of each half an Ounce: Make all these into a
"fine Powder, and form them into two Balls, with as much
"Turpentine as is sufficient for that purpose." Let these
be dipt in Oil, and given with the usual Precautions. They
must be repeated every other Day for a Fortnight or longer;
and on those Days he does not purge, an Ounce, or six
Drams, of Antimony may be given him.

And because Sweating is also of the greatest service, when it can be promoted, the following Dose may be given, and repeated as often as there is occasion.

"Take old Venice-Treacle four Ounces, *Matthews's*
"Pill two Drams, Camphire, and Salt of Hartshorn, of
"each fifteen Grains." Mix these well together, and give
them in a Quart of hot Ale.

But if this proves insufficient to raise a Sweat, he may be cover'd in a Dunghil.

Some particular Regard is also to be had to a Horse's Diet in this Case; for altho' it would be inconvenient to feed him high, yet while he undergoes so much cleansing by Purging, Sweat, and other Evacuations, his Aliment should be somewhat proportion'd to it; and therefore he may be allow'd a large Measure of clean Oats every Day
after

after the Operation of his Physick, with an Ounce of the Seeds of Dwarf-elder, and two Ounces of Caraway Seeds strew'd among them.

C H A P. XLVII.

Of a Horse that is Hidebound.

WHEN a Horse after Travel, or after any Accident, grows so lean, and his Flesh so much sunk, that his Skin adheres close to his Bones, he is then said to be Hidebound; but this is not properly to be term'd a Disease, while it may be made up by Feeding; but when a Horse, after good keeping, continues in the same Condition, we may then very reasonably suppose him to lie under some inward Indisposition; and in this respect it may proceed from divers Causes, as when the Excrements by Dung and Urine are over-much enlarg'd, and the Pores of the Skin obstructed, or when the Entrance into the lacteal or milky Vessels are stuffed by adhesive gluy Matter, or from any other augmented Secretion, or any large Discharge, whereby such a Derivation is made as hinders the Blood from reaching the extreme and outward Parts, for by that means the Vessels and muscular Fibres become contracted, and shrink to the Bones, for want of their due Nourishment; and as the Juices in those Parts become also viscid, the Skin is thereby as it were glu'd to the subjacent Flesh.

*Various ways
whereby a Horse
becomes Hide-
bound.*

And therefore to form a right Judgment of this Distemper, the Farrier ought to examine carefully both into the Quantity and Quality of what a Horse voids from him, for I have known a Hidebound Horse shit often, and his Excrements soft like that of a Cow, and yet not come directly to a Lax or Looseness; and I knew another very costive, but then he had a beginning Glanders, which was the Cause of his Distemper, though in the process of the Disease that the Matter came more plentifully, his Skin grew very loose and thin, which is easy to be accounted for; and a Horse may, no doubt, also become Hidebound from the other Causes above-mention'd.

*What Distinc-
tions are to be
made with re-
spect to Hide-
bound Horses.*

And since this is properly an Effect of some other Disease, therefore whatever cures that, when it is once found out, will soon

soon loosen a Horse's Hide; as for instance, when a Horse voids too much Dung, a stop is put thereunto with proper Remedies, which astringe and dry up the Belly; or when a Horse stales too much, or if the Passages of the Chyle are obstructed, whatever carries off the Obstructions, or puts a stop to the superfluous Evacuation, will cause the Blood to flow in greater quantity into its proper Vessels, by which means the shrunk and depress'd Fibres will by degrees be extended to their usual Dimensions. But if the Farrier be at a loss to judge rightly in those Cases, he can hardly do amiss if he administer the same Remedies we have laid down for the Cure of the Yellow, for there are but few Hidebound Horses which they will not recover, unless there be an inward Decay and Waste.

But while proper means are us'd inwardly, besides good Dressing, Fomentations may be us'd outwardly, such as are recommended by *Solleysell*, made of Succory, Harts-tongue, Agrimony, St. John's Wort, Bay-leaves, Bawm, Mint, Penniroyal, Rue, Sage, Rosemary, Thyme, the Roots of Grass, Maddar, Eringo, or such of them as can easily be had: Let twelve Handfuls be boil'd in two Gallons of Water, or Lees of Wine, and taking as many of the Ingredients in your Hand as you can grasp, rub all his Body with it as hot as he is able to bear; after which take Ointment of Marsh-mallows and Oil of Rue, of each equal Parts, with these chafe his Belly, and all about his Throat and Jaws, or wherever the Hide is much shrunk, then cover him with an old Sheet dipt in the Liquor, being first wrung out, binding over all a warm Quilt or Rug.

This may be repeated for the space of three or four Days; and, as that Author rightly observes, it will help to draw the Spirits and Nourishment to the dry Skin, tho' it will do but little service, unless the inward Obstructions be also remov'd.

How a lean Horse is to be manag'd.

But as for a tir'd lean Horse, who has no inward Indisposition, I would never advise any one to tamper with him, otherwise than by observing a due Care in his Feeding, Dressing, and Exercise; and in this Case, while we only suppose a Horse's Body shrunk and depress'd by the continual Discharges from the Pores of the Skin, and the other Excretions, during his daily and continued Labour, and the want of sufficient Food to make up those Losses, it is very certain these may be repair'd by Food and Ease.

But

But as in this Case the Vessels are contracted and lessen'd in their Bore and Capacity, his Food ought at first to be but moderate, otherwise a larger quantity of Blood will be transmitted into those Vessels, than they are capable at once to receive, which must needs be the Occasion of many Disorders, as it will cause an Over-plenitude in the extreme Parts, and so, by its Redundancy, overburden and load the principal Bowels.

And this is truly the reason why lean and tir'd Horses, who have been suddenly fatten'd by Jockeys, become such Jades, turn broken-winded, or lame, or lose their Eye-sight upon the least Service; for while the main Study of those Persons is (as every one sufficiently knows) only to make them look fat and plump, they soften all their Food, that it may digest soon, and turn the sooner to Blood, and allow them no manner of Exercise, being sensible that any such Method would soon turn to their own Detriment.

But to apply this more particularly to our present purpose; a lean Horse should have his Exercise and Food increas'd by degrees, and justly proportion'd to the Augmentation of his Strength; and because of the Contraction and want of Capacity, which we have observ'd to be in the Blood vessels of such Horses, his Exercise should always be given him so as he may rest some time before he has his Feeding of Oats; because Exercise, by thinning the Blood, and making it take up more space in the Canals, may therefore, besides other Injuries to which it exposes a lean Hidebound Horse, cause a more than ordinary sense of Fulness, by distending the Blood-vessels of the Stomach, which are in that Part very small, and therefore hurt Digestion; whereas if he be suffer'd to stand some time before an empty Rack, or only to eat a little fresh Hay until the additional Motion of the Blood be decreas'd, and the Vessels become subside'd by a gradual running off of the Blood; a Horse will then become light-some, and able to digest his Food, so as it may be converted to true and solid Nourishment.

And for the same reasons a Horse in this Condition ought never to be taken out soon after Feeding, but upon Necessity, and then he should only be walk'd gently, as every Meal makes a fresh Augmentation of the Blood; and, indeed, at all times his Exercise should be gentle and easy, until his Vessels are render'd capacious and strong enough to bear the sudden Sallies of the Blood, and that the Office of Secretion have also acquir'd a sufficient Aptitude to

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make

make their Discharges as regular, and as nearly proportionable as may be to the Quantity of his Food.

And this must certainly be the true Reason of fattening and hardening a lean Hidebound Horse; or in other Words, of bringing a lean Horse into good Case, and at the same time rendering him robust and strong, and able to bear the hardest Labour and Toil, especially if to this be added good Rubbing and Dressing, to promote the Discharges of the Skin.

But notwithstanding these Rules are what we can warrant to be sufficiently agreeable to the Laws of Mechanism in all Bodies whatsoever, yet because the animal System is so much complicated, whereby one Horse also differs vastly from another, every Man's own Discretion must therefore, in the main, guide him as to Particulars. What we have here observ'd in general, has been chiefly calculated with an Eye to those Horses that are of a tender and delicate Frame, and not to such as are naturally hardy, though these may also, in some Circumstances, require such a Care to be had of them. But the Reader may consult the fourth Chapter, where he will meet with some things that bear a near affinity to the present Subject.

C H A P. XLVIII.

Of the Farcin.

THERE is no Distemper which has try'd the Skill and Invention of Farriers more than the Farcin. The Writers of the lower Rank, as *Markham*, and *De Grey*, and those who have borrow'd all their Knowledge from them, have no otherwise accounted for it, than that it proceeds from naughty and corrupt Blood, and that it is the most loathsome and infectious of all Distempers, brought upon a Horse by Infection, or by eating corrupt and naughty Food, or by lying in Swines Litter, and from such like Causes. Neither have those of better Account mended the Matter very much, having only amus'd their Readers with a false and unintelligible Philosophy.

The *Sieur de Solleysell* defines it to be an Ulcer caus'd by the Corruption of the Blood, and that by a certain Poison which is more or less malignant, and consequently makes the Horse's Condition either hopeful, or altogether desperate; and after a short Theory built upon the Writ-
ings

ings of some Physicians, but no ways applicable to the Farcin, he has these Words.

“ For a brief Explanation of the Nature
 “ of that Poison, ’twill be sufficient to tell
 “ you, that it is a venomous Steam, or cer-
 “ tain corrupt Spirits, which penetrate the
 “ Parts of a Horse’s Body, as the Light of
 “ the Sun passes thro’ a Glass. These
 “ Spirits are a sort of Ferment, that breed Corruption in
 “ whatever Part they attack.

*Solleyfell’s
 Account of the
 Farcin no ways
 agreeable to the
 Nature of that
 Disease.*

But this Explanation is not only imperfect, but altogether unintelligible, his Comparison being no ways agreeable to his own Ideas and Notions of that Poison; nor, indeed, deducible from those Causes which himself has enumerated as the chief occasion of the Farcin; for he observes that the Farcin is sometimes communicated by Contagion from an infected Horse, the eating too great a quantity of new Oats, or new Hay, violent Exercise in hot Weather, and even once hard Riding; Hurts and Wounds made by a foul, cancerous Instrument, such as Spurs, Bits, &c. The too great abundance of Blood, and a preposterous and too hasty diligence in fattening tir’d, lean, and over-heated Horses.

But it is very certain none of these Causes will produce such a Poison as can penetrate the Parts of a Horse’s Body in the manner he has describ’d; and, indeed, those Poisons that are of the most volatile and corrosive Nature, tho’ their Effects are sudden, yet their Operations are not fortuitous or at random, but perfectly mechanical, as may be seen by any one who is able to peruse Dr. Mead’s Essays on Poison, where all those things are clearly and intelligibly explain’d.

We shall therefore endeavour to account for the Farcin in a way that we hope will be thought more rational than what any of our Authors have hitherto advanc’d; and whatever regard be had to the *Procatartick*, or remote Causes of that Distemper, we may venture to affirm, that its immediate Cause is a languid and heavy Motion of the Blood, and other Juices contain’d in the small Vessels of the extreme and outward Parts of a Horse’s Body, and that it has its chief Seat in the Skin and fleshy Pannicle.

But before we proceed further, we shall take notice that most Authors have divided the Farcin into divers Kinds, viz. the wet, the dry, the inward and the flying Farcin, the corded Farcin, the Farcin that puts forth red or yellowish Flesh, and that which is of a livid and black Colour, and resembles a Hen’s Fundament.

The wet and the dry only differ as there is more or less Moisture in the Ulcers and Parts where it is seated, the flying Farcin, which makes its Appearance sometimes in one place, sometimes in another; and the inward Farcin, which is said only to be felt on the Breast, but does not elevate the Skin, and is observed often to disappear of a sudden, and become the immediate Cause of Sickness, though either of these may degenerate to a true Farcin; yet while they are not fix'd, but indued with properties altogether foreign to the Farcin, they cannot rightly be brought under that Denomination, but ought rather to be look'd upon as resembling those Eruptions on the human Body, which happens in violent Colds, or malignant Disorders, and are curable as such. All the other kinds are only different Effects of that which makes its first Appearance like a knotted Cord; and it is this sort alone, which, properly speaking, constitutes a true Farcin. In what manner such a Disorder can happen to a Horse, and produce those Effects we daily observe from it, shall be shewn anon.

We have already taken notice that the Farcin has its chief Seat in the Skin and thin muscular pannicle, which lies under it, and is caused when the Juices in those Parts are become viscid, and, consequently, slow and languid in their Motion. If it be consider'd that there is an infinite Number of Vessels in those Parts, that are smaller than Hairs; and that those Vessels, howsoever small, have a Capacity, and contain a Fluid within them, any one may easily imagine, that in the best Estate a Horse can be in, that Fluid can move but very slowly; but when it happens to be too thick, or viscid, it may be then easily reduc'd to a state of Stagnation; and when it is deny'd a free Passage thro' those small Canals, as it is constantly press'd upon it by the succeeding Fluid, those small Vessels, where there is a Stagnation, will be stretched out beyond their usual Dimensions, and the Part will be elevated and raised into a Tumor.

As often as any Part is thus elevated, and the Liquid stop'd that it cannot move forwards; because of the Obstructions and the Compressions there is on all Sides, the Vessels being thereby fill'd beyond their Capacity, it bursts forth; and being now got without the Laws of Circulation, putrifies, and acquiring a corrosive malignant Quality, it gnaws and festers, until it has form'd a convenient Lodgment for itself.

If the Stagnation be sudden and violent, and accompanied with great Pain and Heat, it will cause so great a Derivation of Blood towards the inflam'd Part, that the subjacent Muscles

Muscles will also be affected, and by that means the Part will be rais'd into a large Boil and Impostumation; but when the Pain and Heat is moderate, it will probably pierce no deeper than the Pannicle, and as the subjacent Muscles are but little, if at all, affected, the Tumors will be but small, and proportionable to the Vessels of the same Pannicle. And because the Irritation made by those Knots or little Tumors is not of violence to affect and attract the Blood in the larger Vessels; yet, as there is a near Sympathy and strict Communication, at least, between all the adjacent Parts of the Pannicle, any the least Irritation will easily effect those that are nearest, and the Malady will be communicated by degrees from one part to another, until it spread over the whole Body. Because of the closeness of the Skin to the Pannicle, and the Communication there is between them, the Hide must also be affected; yet that intimacy and closeness is the Cause, in so gentle an Inflammation, that these Knots do not rise equally in all Parts, but chiefly follow the Tract of the Veins; the Humour therefore has a greater tendency towards the Veins, as it finds a Lodgment under them while they are full, and elevate the Skin; and moreover, as the Veins (being only fill'd with a Liquid) are therefore soft and yielding, and may be much easier press'd upon than the superior Skin, which is more hard and compact; and it is from hence that a Cord is always form'd by the Humors along the tract of the Vein; and as the Swelling increases, it gathers Strength, and sometimes surmounts the Vein itself, so that the Vein seems to lie under it.

We have shewn how the Humours thus obstructed turn to Matter: But the Matter of the Farcin is generally small in quantity, as the Knots are form'd in Parts that are dry and adust, and where there is but little Moisture; and as the Vessels which nourish it are also but small; and for this Cause, when the Cure happens to be ill manag'd, the Ulcers degenerate into a *Caries*, and put forth a sort of Flesh which is red, white, or yellowish, according to the Predominancy of the Humours, or else turn hard and schirrous, and of liquid Colour; and when the Lips of the Ulcers become inverted, which happens frequently from the Acrimony and Sharpness of the Matter, or the frequent Application of hot or unctuous things, they are then said to resemble a Hen's Fundament.

But all this is reconcilable to what we have laid down as the immediate Cause of the Farcin, to wit, a Lensor in the

Blood and Juices, whereby they move heavily ; but especially in the extreme and outward Parts, where the Vessels are the smallest ; and it is very certain, that any, or most of those Causes, to which *Solleysell*, and the best Farriers have ascrib'd the Farcin, will produce such a Lentor and Slowness ; or if there be a previous Lentor in the Blood, must increase that Lentor, either in whole or in part, by exciting Pain. And this is plain from the Instance of the Farcin being caused by the Wound of a rusty Spur, which can act no otherwise as a Poison, than that some of the harsh and pointed Parts of the Rust, fret and irritate the tender wounded Pannicle ; and even then it must act mechanically, and in the way we have above describ'd, by retarding the Motion of the Juices in those Parts ; and if, previous to such a Wound, there be a very great viscosity and thickness of the Juices, the Farcin may be caused by the Wound of a Spur, or any other Instrument, tho' it be altogether free from Rust.

If the Farcin be caused by Infection from another Horse, it must act in the same manner, for then we must suppose that some *Effluvia*, or poisonable Steams, fly off from the diseased Horse, which, by insinuating themselves into the Pores of a sound Horse, must occasion a Stagnation of the Juices in those outward Parts, but these *Effluvia* are not of so volatile a Nature as to have often such Effects ; but when Horses stand together in a Stable, it is rather to be attributed to their eating the same kind of Food, and their being under the same Direction and Mismanagement. What kind of Poison may be in Swines Litter, or how far it may be noxious to Horses, is not worth while here to determine, since it is very seldom made use of to Horses ; and if it was, it would rather produce the Mange than the Farcin.

The eating of corrupt and unwholesome Hay, or Oats, may easily cause the Farcin, as such Feeding begets Crudities, which must render the Blood viscid ; for when the Blood has once acquir'd that Quality, a Stagnation may be easily induc'd in the extreme and outward Parts, where the Juices are naturally viscid, and the Vessels extremely small.

Too much feeding, without suitable Exercise, may also be the Cause of a Farcin, as it may induce a gradual *Plethora*, or fulness of the Vessels ; but if that be sudden, by a sudden Adstriction of the Pores, it will be more apt to cause a Fever or Surfeit, or a Foundring in the Body, which in many Cases is not to be distinguish'd from a Surfeit :

Surfeit : And the same Effects may also be produc'd from Travel, or from once hard Riding, and from many other Errors in the Keeping and Management of Horses.

It now remains that we take notice of the Signs ; but because these are manifest and known to all, we shall only distinguish between those that are said to be good Signs, and those which are of ill Prognostication.

First of all then, that kind of Farcin is said to be easily cur'd, which takes its rise upon the Head and upper Parts ; the Reason is, because it can have no deep Root ; but if it once come to affect the Emunctories or Kernels about the Jaws, and towards the Ears, it is then to be fear'd, and, if neglected, will be apt to breed the Glanders.

That kind of Farcin which is superficial, and where the Hide is only affected, cannot be of dangerous consequence, even though it be universal, and has overspread the whole Body ; but when it has been originally seated in the Pannicle, or if it be observed to grow deeper, and affect the Pannicle, it may be then look'd upon as more difficult and obstinate, tho' even then it will not be very hard to remove it, unless it either affect the glandulous and kernelly Parts, or that the Knots break, and degenerate into a *Caries* or *Schirrous*.

But the most superficial and least rooted Farcin, if it continue long without Abatement, may insensibly, and by degrees, become of ill consequence, as it disturbs the Offices of Secretion, for while the Humours have a continual tendency towards the Knots and Sores, the Pores of the Skin become obstructed, and for want of a due and regular Discharge there, the least Error in Feeding and Exercise will cause inward Disorders, wherefore we may often observe Horses that have the Farcin turn also broken-winded and consumptive, and sometimes become liable to the Yellows, and to many other Infirmities, which either render them altogether incurable, or at least make the Cure very difficult.

When the Farcin begins on the extreme and most dependent Parts ; or if in the process of the Disease, the Humours fall downwards upon the Limbs, it is in that Case very difficult to be removed, as it is generally attended with the Grease, but the reason will be shewn in the Theory of that Distemper ; and a competent Knowledge of the Structure and Mechanism of a Horse, will easily enable any one to distinguish in other Circumstances. We shall therefore hasten to the Cure.

And herein the Farrier ought in the first Place to look unto the State and Condition of the Horse, for if he be fat and

lusty when the Distemper seizes him, in that Case his Diet should be somewhat abated : but if it be otherwise, that the Horse is lean and out of Heart, and that he has not had sufficient Nourishment, or that his Labour has been beyond his Strength and Feeding, his Diet ought then to be somewhat augmented ; for as too great a Plenitude and Fulness of the Vessels is oftentimes the Occasion of that Lensor and slowness of the Juices which brings on a Farcin, the same Effects are oftentimes produc'd by Poorness ; because in that Case, the Blood being divested of its Spirits, becomes languid and sluggish, and consequently is render'd the more apt to Obstruction in the extreme Parts, where the Vessels are the smallest, as we have taken Notice in another Place.

And therefore it will appear to be founded also upon Reason, what *Solleysell* says he has experienc'd, from frequent Trials and Observation, that Purging is of no great Service, but oftentimes a Detriment to Horses in the Farcin. This is so plain in case of a Horse that is low in Flesh, that it needs no manner of Proof, and can only be admitted of in such Circumstances as make it unavoidable, when there happens to be an extreme Costiveness, and then laxative Clysters are the most eligible ; but on the other hand, when a Horse is fat and full body'd, tho' Purging must in that Case do him less Hurt, and may be comply'd with in Moderation, yet it is no ways suited to make a perfect Cure of the Farcin, but has been the Ruin of many Horses, in the Hands of ignorant Smiths, who know no other way of carrying off Diseases but by repeated Purgations, the Discharges made that way being the most apparent to the outward Senses, and the most agreeable to those who are able to frame no other Ideas of a diseased Horse, than by imagining his Blood to be full of Corruption, and that the Medicines they use have some elective Property to drain that off with the Dung.

But a more warrantable Experience has sufficiently taught us, that in all Purgations the good must be drain'd away with the bad, and are therefore seldom profitable, but rather hurtful in Foulnesses of the Skin and outward Parts ; but those things can only be successful which work more immediately upon the Blood and Humours, by changing the Contexture, and rendering them thin enough, so as their excrementitious Parts may go off by the nearest and properest Outlets. And it is plainly evident, the Medicines hitherto found the most effectual for the Cure of the Farcin have been endued with such Properties.

But

But that we may proceed methodically, if a Horse be plethorick and full body'd, such a Habit may doubtless be an Incumbrance to Nature, in which Case there will be Pain and Inflammation in the Knots and Tumors, and yet the Matter may not be rightly disposed to come to a laudable Digestion; when these Symptoms are observable, the Cure may be begun by taking a small Quantity of Blood from the Neck, but that ought not to be repeated, unless some urgent Circumstance should require it.

*The Cure of
the Farcin.*

After Bleeding, moderate Purging may be once or twice comply'd with, especially with one or other of the following Prescriptions, which we have in a more particular manner suited to the Nature of the Farcin.

"Take Aloes in Powder, and Myrrh, of each an Ounce, Diaphoretick Antimony half an Ounce, *Jamaica* Pepper two Drams: make them into Balls with a sufficient Quantity of Flower and Honey."

This is so mild, that it may be given almost to any Horse; the following is somewhat stronger.

"Take Aloes two Ounces, Salt of Tartar two Drams, Gum Guaiacum, and *Ethiops Mineral*, of each half an Ounce, make them into Balls as the former."

No Purging Medicine can be better suited to the Nature of the Farcin; but if it should be requir'd stronger, as it may be to some very robust Horses, then the following may be given.

"Take the *Pulvis Cornachini*, otherwise called the Countess of *Warwick's* Powder, an Ounce and a half, or two Ounces, *Ethiops Mineral* one Ounce: Make them up as the former into one or two Balls.

Either of these may be given, according to the Strength and Ability of the Horse, observing always that he drink nothing but white Water warm'd, until the Physick is quite gone out of his Body; which, if he be purg'd three times, will be about a Week or ten Days after the first Dose.

If upon this you observe the Knots and little Tumors ripen well, you need only give the Horse half an Ounce of *Venice-treacle*, or Mithridate, or an Ounce of *London-treacle*, twice a Day, in a Pint of Ale or White-wine; and this may be repeated every Day until the Matter is all discharg'd; or if they terminate in dry horny Excrecences like Warts, which sometimes happens, it may be repeated after the worst Symptoms are over, viz. the Swel-

Swelling and Inflammation about the Roots, every other Day only; and when the Skin becomes so well fortify'd, and the Excrescences so much disengag'd from it, that they begin to fall off in the Dressing, or that you can bring them off with your Nails without hurting him, you may then leave off the use of Medicines, and put a Period to the Cure, by giving your Horse due Exercise.

But if the Obstructions be of long standing, and that there is a very ill Disposition in all those Parts where the Distemper is seated, and that the Sores and Ulcers begin to have a bad tendency, then recourse must be had to those Medicines which are indu'd with the Qualities we have above mention'd; and first of all we shall begin with such as are the most simple and easy to be had.

And here it will be proper to observe, that Antimony given to a Horse among his Corn, will sometimes cure the Farcin; and I have known several Instances of it, tho' I have known it also prove several times unsuccessful; but that may not be the Fault of the Medicine, but the Keeper, who ought, while the Horse is under a Course of Antimony, to give him daily, but moderate Exercise, and likewise moderate Feeding.

Therefore when you give your Horse Antimony for the Farcin, let the Dose be two Ounces, which may be mingled with his Oats; and about an Hour thereafter let him be walked abroad for the space of an Hour more, or an Hour and a half; let him be very well rubb'd when he is brought into the Stable; but the Comb must be sparingly used to a Horse that has the Farcin upon him, because of rankling the Sores; after his Dressing, cloath him moderately warm.

If the Antimony opens his Belly, it will then lose much of its Virtue, and the Horse will become weak; in that Case you may give it in Balls made of Venice-Treacle, or London-Treacle, with a small quantity of Flour, to bring the Mixture into a fit Consistency; continue to give it in this manner till the Looseness abates.

If it be frosty Weather, his Water should be sometimes warm'd, and strew'd with Oatmeal; or, at least, it ought to be set some time before the Fire, because excessive cold Water will be apt to chill the Body of a Horse, which is kept in a more than ordinary Heat during the Operation of the Antimony. But Antimony may be given more profitably in the following manner:

“ Take

“ Take crude Antimony half a Pound, Quicksilver four Ounces, Flour of Brimstone two Ounces: Rub these two or three Hours in an Iron Mortar, until they are reduced into an impalpable black Powder. Then take of the Rasplings of Guaiacum Wood six Ounces, Zedoary and Gallangal, of each two Ounces, Bay-berries, Juniper-berries, Coriander-seeds and Caraway-seeds, of each an Ounce.” Make all these into a fine Powder, and mix them in a Mortar with the black Powder.

Two Ounces of this Powder, made up into a Ball or Paste, with a sufficient quantity of Honey, and given every Day to your Horse, will soon cure him of the most inveterate Farcin, unless any uncommon Accident should happen, or that the Horse be broken-winded, or labours under some other inward Imperfection.

The following Drink may also be given against the Farcin with very good Success, but then it is not once or twice will do the Business, but it must be continued a considerable time.

“ Take of Guaiacum Wood one Pound, Sassafras and Box Wood, of each half a Pound, the Bark of Walnut-tree, and the Roots of sharp-pointed Dock, of each four Ounces, Hog-lice ty'd in a linen Bag, as many as will fill a Pint Porringer, Liquorice sliced four Ounces. Let all these be put into six Gallons of new Wort, the Woods and Bark being first rasp'd, and when it has done working, give your Horse a Quart of the Liquor every Morning, and the same quantity towards the Evening, or oftener.

I have seen a great many Receipts which have been somewhat of the same nature for the Cure of the Farcin, but the Owners of them, for the most part, boil'd the Ingredients in Ale or Beer, and gave it once or twice; and if the Drink did not answer their End, they were then greatly disappointed; but as all those Things have their Operation chiefly in the Glands and small Vessels, a considerable time must be allow'd before their Efficacy be much felt, and if they answer their End in two or three Months, it is as much as can be expected from them.

Solleysell recommends the use of Guaiacum, Sassafras, and Sarsaparilla, two Ounces of each, made into a gross Powder for three Doses, which (he says) is a Specifick, which, by a continued use, infallibly cures the Farcin. The Roots of Solomon's Seal, white Mulein, and Queen of the Meadows, stand also recommended by him for the same Purpose;

Purpose; but any of all these must come far short of our first Prescription, and likewise of the following, which we are assur'd will root out the Cause of any Farcin that is not complicated in the manner we have abovemention'd.

"Take native Cinnabar one Pound, Gum Guaiacum half a Pound; or, instead of that, to a Horse of small Value, the same quantity of the Guaiacum Wood rasp'd, Zedoary and Gallangal, of each two Ounces, Diaphoretick Antimony four Ounces." Make all these into a fine Powder, and put it up in a cover'd Gallipot.

Two Ounces of this Powder may be sometimes given in Honey, and sometimes in *Venice-treacle*, or Mithridate, made into a stiff Paste, and thrown down like a Ball, repeating the Dose every Day; neither will there be Occasion of keeping the Horse bridled, and restraining him three or four Hours from Feeding, for this must digest with his Food, and might be given him among his Oats if he would gather it up clean.

Native Cinnabar, its Virtue.

The Cinnabar, which is the Basis of this Medicine, is a natural Compound of Quick-silver, and some very fine Sulphurs, which render its Operation as mild and easy as it is truly efficacious; and there is no Horse, let him be of never so delicate and washy a Constitution, but may take it with all the Safety imaginable, and it will be so far from hurting him, that he will mend and grow strong upon it.

The Cinnabar of Antimony is also a very good Medicine, and will have near the same Effect as the other, but it is dearer; the Fictitious Cinnabar is likewise useful in the Farcin, but the Native is much the best, and may be distinguish'd from the Fictitious by its beautiful red Colour, being more splendid and shining than that which is made by the Chymists.

There are infinite Remedies to be met with in the Books of Farriers, many of which are affirm'd to cure the Farcin infallibly; but as there are but few of them which are not over-loaded with a Number of useles Ingredients; and as those of them which are the most adapted to that Distemper, are but trifling and insignificant, we have thought fit not to give the Reader any Trouble with them, looking upon the Cures we have already laid down, to be sufficient to answer all that can be propos'd, so far as inward Medicines may be serviceable; and if these be comply'd with in due Time, the Farcin will never have that Tendency to inflame

inflame the glandulous Parts, and to fall out into Boils and Swellings about the Sheath and Belly, neither will it ever degenerate to the Grease, as it often happens when improper Methods are taken.

As to those Cures which are said to be perform'd by putting the Juice of Rue, Beets, and other Pot-herbs, Bay Salt, Hemlock, Henbane, and the like, and those which are constantly boasted of, by tying insignificant things to a Horse's Mane or Tail, I believe no judicious Person will give much more Credit to them than I am willing to do, there being very little to be said in Behalf of the first, and the last being monstrously ridiculous.

But any of these may succeed, if to them *The Farcin* be added daily Exercise; and I have my self *sometimes cur'd* been Witness to such like Cures, in a very *by Exercise.* moderate and beginning Farcin; but then it was not the Application, but the Exercise; and nothing is more common among some Country People, than to blood a Horse for the Farcin, and to send him immediately to Plough; and while the Exercise is truly the Cause of the Cure, they generally attribute it to the smell of the Earth; and agreeable to this is what we find in *De Grey*, in his Second Book, Chap. IX. towards the latter End of the first Section; where, after a great Number of insignificant Recipe's, he has these Words.

"But now I will give you, for a Close, the best and most certain Cure for this Disease that I ever yet knew, and with which I have perfected more rare Cures of this Nature, than of all the Residue before inculcated." And thus it is.

"Take of Rue the tender Tops and Leaves only, without any of the least Stalks, a good Handful, first chop them small, and then stamp them in a Mortar to a very Ointment, when they are so well pounded, put thereunto of the purest white tried Hog's Grease one Spoonful, and so work them together to a perfect Salve or Ointment; that done, stop into either Ear this whole quantity by equal Portions, and put a little Wool upon the Medicine, to make it keep in the better, and so stitch up his Ears, and let him remain in the Stable four and twenty Hours at the least, and then unstitch his Ears, and take forth the Wool, and either put him forth to Grass, or else if he be to be wrought, work him, for the more his Labour is, and the more spare his Diet is, the sooner he is cur'd.

"This

“ This I recommend to you for the best and most certain Cure that I could ever meet with ; for with this Receipt only, I assure you on my Credit, I have cur'd more than an hundred Horses, many of which were by other Farriers holden for incurable, and sentenc'd to be Food for Hounds.

An Observation on the recited Passage out of De Grey.

But it is very plain, all that Rue can do, when used in this manner, is but little, especially in the space of twenty-four Hours ; for it is demonstrable from the Nature of the Farcin, as it is a Disease brought on by length of Time, so it must of consequence require Time to its removal, and in all chronical Diseases and ill Habits it is the same ; and therefore what this Author has apply'd to the Rue, was only owing to the Exercise, tho' I cannot approve of his Method of keeping a Horse to hard Labour and a very spare Diet too, that being directly contrary to the Nature of all Animal Bodies whatsoever, which must be enabled to do their Work by Food ; and I am truly of Opinion, no Horse was ever yet cur'd where this Rule was strictly put in practice ; but how far a Horse may be indulg'd in Feeding, while the Farcin is upon him, any one, with a little Care and Observation, may in some measure be a Judge. What relates to putting Rue, and other pungent and stimulating Medicines within the Ears of a Horse, for sudden Disorders of the Head, has been already spoke to, where we treated of the Staggers, to which we refer the Reader. We shall therefore go on to the remaining Part of the Cure, which chiefly concerns the Applications made externally.

If due and proper Care was taken in the beginning of the Farcin, there would be little need of outward Means, otherwise than by washing the Sores with *Aqua vite*, Brandy, or Wine, or with Urine, and such like things. But the frequent Mismanagement which Horses have been exposed to in this Distemper, has render'd both the Disease and the Cure the most complicated and perplexed of any that is to be met with in the whole System of Diseases, insomuch that there is scarcely an Herb or Plant, but what has been internally used and outwardly : There is no Poison, natural or artificial, that has not had some share either in killing or curing Horses who have lain under this Malady. But out of those we shall endeavour to make the best Choice ; neither shall we use them promiscuously and at a Venture, as has been hitherto done by most Practitioners, but by making

making the proper Distinctions suit them, as near as can be, to the Variety and Difference which is most observable in the Knots and Ulcers.

In some Kinds of the Farcin the Skin is but little, if at all, elevated, but only a viscid Matter transudes, and passes thro' the Pores, and hardens like Corns; and this sort we have observ'd not to be very difficult, but may be cur'd chiefly by Internals, as are but small, and accompanied with little or no Inflammation. Yet because when they continue long, there will be Matter gathered beneath them, the best way is to anoint them with Oil of Bays, with a moderate quantity of Quicksilver, and they will soon fall off.

External Applications, when necessary, and how they are to be apply'd.

When the Farcin makes its Appearance in Tumors that elevate the Skin, if they continue small, they will probably end as the other: And therefore the Farrier ought not to be too busy to ripen them, but leave them as much as can be to Nature; for in that Kind, the Matter very often finds a Passage for itself thro' the Pores of the Skin, and what is not turn'd to Matter, is wash'd back again with the reflux Blood.

But the Knots and Tumors are sometimes so disposed, that without coming to a laudable Digestion, they grow fungous, and open like a Sponge, and transmit a great deal of thin viscid Matter through an infinite number of little Holes and Interstices in that loose Substance. There is a bad Kind of Farcin, and is apt to degenerate into very untowardly Sores. But the best way to manage in this Case, and prevent its having any ill tendency, is to dress them with the following Ointment.

“ Take common Turpentine, or Venice Turpentine, four Ounces, Quicksilver two Ounces; incorporate them in a Mortar until the Quicksilver is kill'd, and the Ointment turns to the Colour of Lead. Spread this upon Pledgits of Hurds, and apply them upon the Sores.

The Turpentine will suck out the superfluous Moisture, and the Quicksilver will keep the Excrescences under. This is a most excellent Remedy, and will seldom or never fail making a perfect Cure, if it be made use of in time; and the Sores be dress'd with it once a Day, or once every other Day.

But the most common and ordinary Case is, where the Knots rise pretty high, and are painful to the Touch, but at the

the same time give no signs of their coming to Digestion while they continue so: Let the Horse have daily the Antimonial or Cinnabar Balls exhibited to him, that, if possible, the Matter which forms the Cords and Knots may be thereby attenuated, so as it may be carry'd along with the Current, or may find a Passage thro' the Pores; for it is every one's Business, as much as may be, to avoid their breaking, and turning to Ulcers. For the endeavouring unskilfully to digest and break those blind and dry Knots, which, of themselves, have no Tendency to ripen and turn to Matter, is the reason why they so often degenerate into those indurated, and hard Excrescences, which we daily observe are so difficult to be removed. And therefore, while the proper Means are used inwardly, which must never be neglected till the Disease is quite conquer'd and overcome, outwardly may be made use of the camphorated Spirits, *viz.*

"Take rectify'd Spirits of Wine one Pint, dissolve in it
"an Ounce and a half of Camphire; and with a Sponge dipt
"in it, rub all the Knots and Cords five or six times a Day.

But if the Knots grow soft, and yeild to the impression of your Finger, in this Case they ought to be opened as soon as they come to Maturity, especially those that are the largest, to prevent the Matter returning into the Blood. For altho' a small quantity of Matter taken up, and wash'd back into the Veins with the reflux Blood, may be of no very ill Consequence; yet when there happens to be much of it, and that its Discharge is prevented by the thickness of the Skin, as is pretty usual to Horses, it is not unlikely that the Matter, when it returns in this manner, may by its Acrimony and Sharpness, abrade the small Vessels, and thereby cause fresh Eruptions on other parts of the Skin; or, if that does not happen, its Stay and Continuance may cause a very ill Disposition of the part, especially in those Tumors and Knots that are seated near the Glands and Kernels.

Now there are various ways of opening those little Tumors; some Farriers prick them with an Awl, or with a large Needle, or other sharp Instrument. Some pierce them with a small Iron red-hot, and somewhat rounded at the End. But many of our common Farriers pull out the Knots with Pincers. And there are some who use no other method of killing the Farcin, as they often term it, but by giving the Fire.

No doubt all these methods may be practis'd in the Farcin, in some particular Circumstances; but the way of treating

ing those Tumors ought to be suited to their various Dispositions. But while they are nothing but small Pustules, full of Matter, neither the Fire, nor a hot Iron, is necessary, but a sharp Instrument, with a keen Edge, particularly a Lancet, or Incision-knife; neither should they be pierc'd or bor'd and then have Tents thrust into them, but the Orifice made large enough to discharge the Matter. For the most simple Sore may easily be chang'd to an ill-disposed Ulcer, by the use of Tents, as shall be shewn in another Place.

If the Sores have no bad Tendency, they need only be dressed with warm Turpentine, or common Tar, keeping your Horse cover'd with a Sheet; and if they besometimes wash'd with warm Brandy, or Spirit of Wine, it will be very proper.

This Method will be sufficient to cure all those Knots that are of a moderate size, and easily ripen. But when there happen to be some that are pretty large, and can neither be discuss'd, nor brought to Matter, in that Case, if they were to be cut with a sharp cold Instrument, there would probably nothing issue out but Blood, and the Wound would soon close again; therefore, to them, a hot Knife, or a hot Iron, is the most proper; but then the Farrier should know very well upon what Grounds he meddles with them.

We shall now consider the Farcin in its more advanced state, viz. when it becomes attended with ill Accidents. To understand which aright, besides many other *Precognita*, the Farrier ought to be pretty well instructed in the Art of Chirurgery. For, as we have already observed, the most simple Knots and Tumors may, when they are ill managed, degenerate into Ulcers, so we find this to be true by daily Experience; for there is scarcely any Ulcer, or preternatural Excrescence of any Kind, which can grow out upon an Animal Body, but what is often the Effect of this Distemper, and proceeds chiefly, as we have also taken notice, from the want of proper Medicines internally, or even when the Medicines, though well adapted, have not been continued long enough to do their Business. The compelling Nature in bringing those Things to Suppuration and Matter, which in themselves have no Tendency to it. The inducing a bad Disposition into the Sores and Ulcers, by the Application of fat, greasy Medicines; and the inclosing of foreign Bodies within them, as Tents made of the Pith of Elder, and other spongy Things, and even those of Flax. The injudicious Application of hot, caustick, and corrosive Medicines, and of the Fire itself: The exposing the Sores to the sharp Air; and a great many other such like Errors.

The principal Intentions with respect to external Applications.

But that all these Things may be made as easy and intelligible as possible, we shall reduce the whole Method of Cure in those obstinate Cases, to three principal Intentions. The *first* is, the cleansing the Ulcers from Foulness; the *second*, to suppress a luxuriancy and false growth of Flesh; and the *third*, to destroy any such Excrescences when grown; and in this last there are also several Intentions, as we shall see anon.

As to the *first*, if the Farcin Knots have been opened, and degenerated into foul Ulcers, if these are not deep, and their Lips grown callous and hard, the *Unguentum Aegyptiacum*, made chiefly of Honey and Verdegrease, which is sufficiently in the acquaintance of all Farriers, will, for the most part, answer that End. Or the Ointment made of Quick-silver and Turpentine, as above prescrib'd; or *Basilicum*, mix'd with red Precipitate, in the following manner.

“ Take red Precipitate half an Ounce, rub it in a smooth Mortar until all its shining Particles are destroy'd, then mix it very well with two Ounces of *Basilicum* to dress the Sore withal.

The Precipitate is a most excellent Medicine when it is thus prepared; but in the way the Farriers use it, it seldom succeeds, because they apply it in a rough, gross Powder, as it comes from the Laboratory of the Chymists, and that also in a very large Quantity; which, instead of bringing an Ulcer into a good Disposition, makes the Sore rankle, and become ten times worse. I know this is also practis'd by some Surgeons, and one of considerable Name and Practice approv'd of it in my hearing; tho' I must needs say it is contrary to my frequent Experience: And it is likewise contrary to the true Intention of that Medicine, which is only to cause a purer Digestion, by insinuating its finer and more subtle Parts into the little Canals and Pipes, thereby forcing thro' their Obstructions; whereas, when it is applied in a gross Powder, as it is indued with many sharp Points, it only increases the Influx of Matter, by wounding those tender Fibres, and thereby causes a greater Derivation of Humours to them, which ought to be avoided by every good Surgeon and Farrier. But those who love to see a great quantity of Matter follow their Dressings, may have their Expectations very near answer'd by the Application of Glas Powder, the Sand of an Hour-Glass, or any thing else that is sharp-pointed and cutting.

But

But in some Ulcers a milder Medicine than Precipitate may even be used, as the dulcify'd or sweet Mercury, made into Powder in the same manner as the former, and it will answer the End with equal Success. As soon as they become clean and smooth at bottom, and that they begin to fill up, they need only be dress'd with Honey mix'd with Spirit of Wine, which will both cleanse and heal them; or, to make the Dressing sit on the better, it may have Turpentine added to it.

The *second* Intention, or the suppressing and keeping down proud and fungous Flesh, may be done by the use of all gentle caustick Medicines, as washing the Sores with blue, green, or white Vitriol-water; but the blue is the strongest, and may be made by putting an Ounce of Roman Vitriol to a Pint of fair Water, and letting it stand till it is all dissolv'd. The way of applying this is by dipping Flax into the Solution, and when you have squeez'd out the Moisture, apply it as dry as may be to the Ulcers: And if Bandage can conveniently be apply'd over them, it will restrain the Growth of proud Flesh, unless the Horse be inwardly disorder'd, which must be carefully look'd into, that your Application may be suited accordingly.

If the proud Flesh rises very fast, you may apply the Powder of blue Vitriol alone; and if the Part will not admit of Bandage, you are to supply the want of it as much as you can, by applying dry Lint over the Powder to a pretty good thickness, and above that a Plaister of Burgundy Pitch, or some other Plaister that will stick very fast; and if you can inclose a thin Plate of Lead wrapt up in the Flax, it will be very convenient; because the Weight and Pressure upon the Part, will contribute very much to this Intention.

There are many other Medicines of this kind that may be used with good Success, as the Vitriol-water prescrib'd for Rheums in the Eyes; and likewise the blue Water, and the Solution of the *Lapis Mirabilis* out of *Solleysell*, or the Powder of the said Stone, all which may be seen in their proper Places; and many other things may likewise be met with in the Books of the best Farriers, which may be used in the like Case, which we have not room here to insert; we shall therefore proceed to the last Intention which we mention'd in the Cure of the Farcin, *viz.* by laying down a proper Method whereby to destroy all manner of Excrescences, which have either been occasion'd by ill Management, or have baffled the common and ordinary Means used to prevent them; and herein we have undertaken a very hard and difficult Task.

And such are those Pieces of imperfect Flesh, which we have observed to shoot forth from the little Ulcers in various

rious Aspects, some resembling a Hen's Fundament, and some (as is not uncommon to Excrecences of that Kind) having no distinct Resemblance to any thing in Nature; but as they all agree in their Compactness and Solidity, whereby they have seldom any great Tendency to waste, after they have once acquir'd such a Disposition; the Method propos'd in this Intention may therefore be put in practice, so as they may be altogether rooted out; and this is to be done either by cutting or burning, or both, according as different Circumstances may require.

The Knife is the most expeditious in all Cases where they are loose, and not firmly seated with a large Adhesion to the Flesh, and when they lie off from the larger Vessels, applying afterwards some cicatrizing Medicine; but this Method cannot be observ'd with respect to the whole, but only to those which by Accident put forth in such a manner; and therefore burning Medicines, or the Fire itself, must also be us'd.

The Method of making caustic Applications in the Farcin.

But it ought carefully to be taken notice of, that in all Cases where Medicines are to be apply'd, whose immediate Operation consists in consuming the Part to which they are laid; if the Disease be universal, and spread over divers Parts of the Body at once, as that under our present Consideration, those of the mildest Operation are first to be comply'd with; and that they may the more easily take effect, the Parts ought either to be rubb'd till they become somewhat raw, or be gently scarify'd with a Fleam.

Secondly, If recourse must be had to more powerful Medicines, or to the use of Fire, as is necessary in obstinate Cases; and if there be a vast number of Excrecences to be destroy'd, and these seated in divers parts of the Body, you ought not to attack them all at once, but by degrees bring some to Digestion and Matter, before you begin with others; for the communicating too great a Heat to divers Parts of the Body at once, as must happen from strong Caustick Medicines, or actual Fire, will either destroy your Horse, by throwing him into violent and sudden Disorders, or at least create a bad Disposition, which, instead of making a Cure, will render him much worse, as might be easily demonstrated.

Thirdly, The Situation of the Parts is also very much to be regarded in this Intention, and all such harsh Applications ought to be gently and sparingly us'd to the Limbs and dependent Parts, and likewise to the Sheath and other soft Parts, to the Region of the Heart and Kidneys, &c. and when they have been apply'd to those Parts, the Fire ought

ought to be fetch'd out of them with all possible Expedition, by scarifying the burnt Flesh, and using such Dressings as are able to keep down an overgreat Inflammation, and bring them suddenly to Matter.

Lastly, While the Operations are perform'd, a more than ordinary Care ought to be taken in a Horse's Feeding; and if he be perceiv'd to lose his Appetite, as that is a sign they have been carry'd to the Height of his Strength, a seasonable stop ought therefore to be put to them, and he should be continued to a Mediocrity in Diet, gentle, but daily Exercise; and sometimes opening and laxative Clysters may be exhibited, during the whole Course of such Applications.

We shall put a period to this Cure, by inserting some few Medicines which may be suited to the several Intentions of cauterizing and destroying superfluous Flesh, whereof the two first are very mild and safe in their Operation, and may be us'd without any great Caution, excepting that the Horse ought to be kept from Cold, and have his Water constantly warm'd.

" Take of Quicksilver 4 Ounces, *Venice-Turpentine* 2
 " Ounces, rub them in a Mortar until they are incorporated,
 " and the Quicksilver wholly disappears, after which add 2
 " Ounces of Honey, an Ounce of Verdigrease, black Soap
 " and Euphorbium in Powder, of each an Ounce and a half.
 " Take of Quicksilver two Ounces, *Venice-Turpentine*
 " three Ounces, black Soap one Ounce and a half, incor-
 " porate them as the former; then add Euphorbium and
 " *Spanish Flies* in Powder, of each an Ounce.

With either of these anoint all the Excrescences once a Day, holding a hot Bar of Iron to help the Medicine the better to penetrate; but first of all, if they be dry and without Moisture, they ought to be rubb'd thoroughly with a Hair Cloth; or they may be gently scarify'd, as has been hinted; but if they continue so obstinate as not to waste upon the Use of these things, then recourse may be had to the following.

" Take Oil of Bays and Quicksilver, or Neapolitanum, 2
 " Ounces, Turpentine one Ounce, Corrosive Sublimate in
 " Powder, and Euphorbium, of each an Ounce and a half:
 " Mix them together with as much black Soap as is suf-
 " ficient to make them into the Consistency of a thick Oint-
 " ment, and with a Wooden Slice anoint all Excrescences,
 " taking care not to spread it upon the sound Parts.

This will soon destroy the Tumors, and in a short space reduce them to an Escar, which may be anointed with
 U 3 warm

warm Tar once a Day, until the Scab fall off; after which a small quantity of Verdegrease may be mix'd with Tar, or any other Digestive, to cleanse the Ulcers, to prevent a fresh Growth of proud Flesh, which will be very apt to arise after those fiery Applications, unless the Horse be otherwise in good Order. What is further necessary, after caustick Applications, may be seen in that Chapter where we have treated of Burns and Gun-shot Wounds.

Markham says, the Farriers, his old Masters, were wont to take white Mercury; and, after opening the Knots, they put a small Quantity into each, which in a short time made them fall off; but it ought to be very warily us'd, otherwise it will cause dangerous Swellings in the Limbs and Kernels about the Throat, as in an Instance I saw not long ago; but this Caution is hardly necessary to the Country Farriers, who seldom call for it by the Name of *Corrosive Sublimate*, as I have taken notice several times, so that the Apothecaries give them *Mercurius Dulcis* instead of it; which, altho' it does not form any thing like an Escar, yet, as they pepper them very soundly with it, it is not always unattended with Success.

The following is from *Solleysell*. He calls it the *Ointment of Naples*, having had it communicated to him by a *Neapolitan* Groom, after he had seen many surprizing Cures performed by it; but altho' it has been us'd with Success in every State of the Farcin, according to that Author, yet it is more peculiarly adapted to destroy Excrescences, as it is made up of Ingredients that are altogether caustick, and somewhat stronger than that which we have last inserted.

“ Take Realgar and Sublimate, of each two Ounces,
 “ Arsenick and Euphorbium, of each one Ounce; beat
 “ them to fine Powder, and incorporate them, without
 “ Heat, with half a Pound of Oil of Bays.

“ Keep the Ointment in a glaz'd Pot, and when you
 “ have occasion to use it, open the Knots or Swellings
 “ with a Launcet, and put into the Hole a little Cotton
 “ dipt in this Ointment, without heating it in the least.
 “ The next Day, if you perceive that it is fallen away, you
 “ must put in a little Cotton with some fresh Ointment;
 “ but if it stick, one Application will suffice.

These may be made stronger or weaker, or according as you mix them with a greater or lesser quantity of Ointment, and may be diversify'd by changing one Ingredient for another, provided you keep a sufficient quantity of those that are caustick. The *Realgar* is a Composition made of Brimstone, Orpiment, and unslak'd Lime; the
 Ointment

Ointment is no other than the yellow Arsenick, but obtains the Name of Orpiment from the Painters. *Corrosive Sublimate* is a Preparation of Mercury, which borrows its caustick and burning Quality from the *Aqua fortis*, which enters into its Composition. Any of these us'd dry will yet be of more sudden efficacy; unslak'd Lime, or the capital Soap Lees evaporated to a dryness, will have the same Effect; or the Lunar Caustick, so much in the acquaintance of Surgeons; and, in fine, all things that are plentifully saturated with Fire. But in the Farcin they ought to be guarded and made more moderate, as in the manner above prescrib'd. Neither is the actual Caustery or Fire to be apply'd otherwise than as an Auxiliary, and to assist in other Intentions, viz. to keep down a luxuriant and fresh growth of proud Flesh, after the Knife, or the more gentle Causticks. But the Reader may turn to the latter End of this Treatise, where the Nature and Use of that Operation is shewn.

C H A P. XLIX.

Of the Mange.

AS the Distemper we have treated of in the preceeding Chapter has its chief Seat in the Skin and fleshy Pannicle, that which comes under our present Consideration is yet more superficial, being principally seated on the Surface of the Skin only and Scarfskin. And therefore as the Mange is thus circumstanc'd, it is seldom attended with Pain and Inflammation, but only with an Itching, that thin membranous Tegument not being indu'd with any tender Sensation, as has been observed in the beginning of the Anatomical Part; but yet if a Horse has been ill manag'd, or that the Distemper has been of a long standing, it is then apt to degenerate from what it was at first, and taking deeper Root, it causes Biles and Sores, which often have a very ill tendency.

The Cause is from an over-great Quantity of viscid Serum, bred in the Bodies of Horses by corrupt and foul Feeding, as the eating of Grains, a too frequent use of hot Mashcs, want of due Exercise, and the want of good Currying, especially to a Horse that has been used to it; for by that means the Pores become obstructed, and the Serofities of the Blood are thereby accumulated in the small Vessels of the Skin. Sometimes it proceeds from want of Food and due Nourishment, whereby the Blood being depauperated, is render'd unable to reach

the Passages of the Skin, to make a Secretion there; so that its serous Parts being detain'd in the small Vessels, turn corrosive, and break through the Skin; and sometimes it is caus'd by Infection from other Horses.

The Signs are, the falling off of the Hair, especially about the Loins and Hams, and from most or all the Joints, according as the Distemper is more or less prevalent; sometimes from the Head and Neck, but very frequently from the Rump. The Skin in those Parts, by reason of the Heat and Corrosiveness of the Matter, turns thick and hard, and sometimes crusted like that of an Elephant, from whence several Farriers have term'd it the *Elephantick Malady*.

The Cure. As to the Cure, most Farriers lay a great stress on Bleeding, insomuch that they drain away the Blood from several Parts of the Body at once, viz. from the Neck, the Plate-veins, from the Tail, and sometimes from the Flanks; and all this from a firm, but ignorant Conceit, that in the Mange the Blood is full of Corruption, which, upon examining what has been already said, will be found a ridiculous Practice, and very pernicious, especially to those Horses that are low and out of Heart, as nothing so often makes the Disease degenerate into an ill Habit, which may easily be follow'd with Biles and Ulcers, as it weakens the whole Body, and thereby adds to that which is the Cause of the Distemper.

Therefore all that can be propos'd by Bleeding, is to lessen the quantity thereof, when it happens to be redundant in a Horse, in order to give a freer Passage and Circulation to the Juices in the extreme Parts, that the Secretions of the Skin may be daily perform'd, and this we judge very necessary; after once Bleeding, the following purging Drench may be given.

“Take Sena one Ounce, Jalap in gross Powder six Drams,
“Roots of sharp-pointed Dock a Handful, slice the Roots,
“and boil all together in three Pints of Water to a Quart,
“pass the Decoction thro' a Sieve, and add to it two Ounces of Syrup of Buckthorn.” Or this;

“Take Jalap in Powder one Ounce, Diagridium two
“Drams, Cream of Tartar and Diaphoretick Antimony,
“of each half an Ounce. Mix them all together, and give
“them in a Pint of Ale.

Either of these may be given with the usual Precautions, but they need not be often repeated; for Purging is no otherwise necessary for the Cure of the Itch than Bleeding,
and

and only gives it gentle Help when rightly used, as it cools and refreshes a plethorick and full-body'd Horfe.

After these things, recourse must be had to outward Applications, for it is these alone that must give the finishing stroke to it, as the Distemper is seated outwardly, and not deep rooted; and for that Purpose nothing has ever been found more effectual than Sulphur, for which it bears the Test of all Ages; and if it sometimes proves otherwise, it is altogether owing to the ill Management of it, or the other preposterous Methods that are made Use of along with it. The following will kill any Itch in the Beginning.

“ Take common Sulphur and fresh Butter, of each half a Pound, Turpentine two Ounces. Mix them together, and anoint all the Parts with it once a Day.” Or this:

“ Take the Roots of sharp-pointed Dock half a Pound, boil them in a Pint of Vinegar till they be soft, then pulp them thro' a Hair Sieve, after which take of Bees Wax two Ounces, Hogs-Lard four Ounces. Melt them over a gentle Heat, and mix them with the Pulp, then add half a Pound of Flour of Brimstone.” Or the following.

“ Take Elicampain Roots in fine Powder two Ounces, the Roots of white Hellebore one Ounce, Flour of Brimstone four Ounces. Mix them in a sufficient quantity of Ointment of Tabacco to make a stiff Ointment.

Either of these being rubb'd upon the Parts, with the Assistance of a hot Bar of Iron, once in twenty-four Hours, will kill the Mange in a few Days; neither will it be necessary to fret the Skin to a Rawness, for, instead of doing Good, that Method proves more frequently prejudicial, as it excites too great Pain, whereby a too great Derivation of the Humours is caused towards the infected Parts; which is the Reason why even the best Farriers are obliged to have Recourse to caustick Medicines, the Disease being grown too powerful to be destroy'd by those of a milder Operation. The Use of Copperas Water and Allum Water is likewise prejudicial in most Cases, as I have often observed; for all that these can contribute towards the Cure of the Mange, is only by allaying the Heat and Itching, in which albeit they may sometimes succeed, yet as they obstruct the Pores very much, by hardening the Skin, they make it liable to crack, often rendering those Parts subject to fresh Heat and Inflammation, by which it degenerates to Ulcers and Biles. The best way, therefore, is only to rub the mangy Places gently with a woollen Cloth,

to fetch a moderate Heat into the Part, for by that means the Sulphurs will penetrate thro' the Pores into the small Canals and Vessels, with greater certainty than when they are daub'd upon Places that are raw or incrusted.

This is the true Method of curing the Mange; or it may be done by the use of Mercurials apply'd in the same manner, whereof we shall also subjoin two or three Forms.

“ Take of Quicksilver four Ounces, kill it in two Ounces of Turpentine, then by degrees add Hogs-lard or Butter to the quantity of half a Pound.” Or this:

“ Take Quicksilver two Ounces, kill it in the same quantity of Turpentine, adding an Ounce of red Precipitate in fine Powder, with four Ounces of Lard or Butter.

Some make a Mixture of Quicksilver and Brimstone, together with an Addition of Soot and black Soap, which, in some moist and watery Cases, may be of more particular service. Some use Arsenick, Quicksilver, and other burning and caustick Remedies; but these ought never to be meddled with, excepting in some extraordinary degenerate Circumstances, and when there happen to be Excrescences that are dead and without Sense, which can by no means be brought to yield to milder Methods; but in an inveterate Mange, it will be of the greatest service to give your Horse the Antimonial or Cinnabar Balls, prescrib'd in the preceeding Chapter against the Farcin.

CH A P. L.

Of Tumors, Impostumes, and Abscesses.

A Tumor defined.

THERE can scarcely be any one so much unacquainted with the common Terms, as not to understand, that by a Tumor is meant the Elevation and rising of some Part of the Animal Body into a preternatural Swelling; in what manner that comes to pass, has been in some measure shewn in the 48th Chapter, where we have taken notice, that as often as the Blood, or their Juices, happen to be very much obstructed in the small Vessels of any Part, that will be stretched out beyond its usual Dimensions, especially as there is a perpetual Influx and Succession of the same Fluid from behind; to which we shall add, that these Obstructions are caused either by the Quantity or Quality of the same Fluid, whereby it presses and stretches one Part more than another; or when

when any Part happens to be hurt or weaken'd by external Accidents, whence being unable to make an equal Resistance with the rest of the Body, it will at length receive such a quantity of Fluid as will raise it into a Tumor.

The Writers of Surgery, in all Ages, carefully following one another's Steps, have reduc'd all Tumors to four general Kinds, viz. into the *Natural*, *Encysted*, *Critical*, and *Malignant*; and under these they have rank'd all the other Species. But this Division is neither in itself very accurate, nor rightly suited to our Purpose, as our Business is with Horses; we shall therefore reduce them to the *Natural* and *Encysted* only. Of the first Kind are all Biles and inflam'd Swellings; and, in short, whatever Tumors are form'd originally by the Fluids distending their proper Vessels, whether they be critical or malignant, for these differ only in degree from other natural Tumors. And of the second are all those that are form'd within membranous Cysts or Bags, as *Wens*, *Anburys*, and some sort of *Figs*, and other Excrescences that grow on the external Parts of the Bodies of Horses: And this agrees the best with what these Authors here observed, with respect to the Formation of all Tumors by *Fluxion* and *Congestion*.

All Tumors reducible to the Natural and Encysted.

Those Tumors that are large, and come to Suppuration, and have Matter gather'd within them, whether they be Natural or Encysted, are term'd *Impostumes*; and when the Matter is lodg'd within the common, but chiefly the larger Interstices of the Body, as those Furrows or vacant Spaces between the Muscles, or between the Muscles and Bones, they are then called *Abscesses*; but all Abscesses, and most kinds of Impostumes, are form'd of natural Tumors.

Abscesses and Impostumes.

But we shall consider all Tumors, whether Natural or Encysted, in the following Order: viz. *First*, with regard to their Magnitude and Situation, there being little to be learnt from their Figure and Colour, especially in Horses. *Secondly*, With respect to the Matter whereof they are form'd. And *Lastly*, We shall lay down some general Rules to be observ'd in the Cure.

Tumors consider'd with respect to their Size, Situation, and Matter.

First, When a Tumor happens to be situated upon any Part where there is no depth of Flesh, as on the Nose and upper part of the Face, it will not be apt to grow large; or if it be seated upon the Skin or fleshy Pannicle, and free from

the

the subjacent Muscles, it cannot be ordinarily expected to grow to a Bigness, there being no sufficient Source for its Substance and Increase, as we have observ'd in a preceding Chapter; and as those little Tumors very often spread themselves over divers Parts of the Body at once, being thrust out in that manner, because of their Contiguity with the Skin, which, in some delicate Animals, is able to give little or no Resistance; they are therefore the more unlikely to alter their Size, since it is very reasonable to suppose they make a Revulsion from each other, whereby the Matter, which might have otherwise been discharg'd by the common and ordinary Secretions, or cast off in one large critical Tumor, is evacuated by a vast Number of Tubercles and little Hurdles. But albeit Tumors thus situated do not ordinarily grow to any great Size, yet as all Animal Bodies are made up of Vessels which are capable of Extension and Dilatation, when there is a continual Addition of fresh Matter; therefore some Tumors that are very superficially situated, and have but a small beginning, will increase to a very large Bulk.

And it is from hence we may account for Wens, Anburys, and all such other Excrecences, *viz.* when some Duplication of a Membrane or small Vessel is, by an Accumulation of Matter, protruded and thrust forth beyond the common Limits of the Horse's Body, yet in such a manner as gives no great Disturbance to the Circulation of the Fluids that are within; therefore, as they are not apt to cause Pain, they will therefore grow in proportion to the quantity of Matter which is empty'd into them; and Nature so far encourages their Growth, as to enlarge those Vessels which nourish the Skin, and other Integuments wherein that Matter is contain'd.

But it is quite otherwise with those Biles and Tumors that are seated in the fleshy and muscular Parts, for as they occasion violent Pain by stretching out the Vessels and Fibres, and as the Pain causes a considerable Afflux of Matter, therefore any Swelling form'd that Way must have a speedy Issue and Determination, by the bursting of the said Vessels; and it likewise cuts off the Communication of the Blood in those Parts, and therefore it will become a running Sore, until there is a Re-union of the Parts that were tore and disjoin'd.

Now all such Swellings are usually larger or smaller, according as their Situation is more or less in the thick Flesh, and according to the Multiplicity and Size of the Vessels which

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which go to their Nourishment, and likewise as the Matter finds more or less room for itself, as happens in Abscesses. The Dependency and Softness of the Part contributes also to the Augmentation of the Swelling and Increase of the Matter, because the Return of the Blood is but slow from the inferior and dependent Parts, and because the soft Parts are easily stretch'd out when once the Blood has taken a Tendency towards them, which is plainly evident from those sudden and excessive Swellings which sometimes arise in the Fundament and Sheath.

But the Bones and Sinews are also liable to the like Infirmities, yet the Swellings, which happen to them and other compact Parts, seldom rise to any extraordinary Bigness, because of their Solidity and Hardness, which hinders their being extended; but for the same Reason makes them very tedious and difficult to be removed; and if a Horse is put to much Exercise while the Sinews are relax'd, the Pain and Anguish will cause a Swelling in the neighbouring Flesh; and this we may frequently observe in Strains of the Shoulder, Back, and Limbs. As for Tumors in the Bones, Horses are indeed not very much subject to them, excepting when they are caus'd by old Ulcers that corrode and penetrate to the Bones; and this is plain enough in these Horses that have been founder'd and batter'd in their Feet for some considerable time, where the diseased Foot may be observ'd to grow much larger than the other, the Coffin-Bone being often in that Case affected. Neither is it improbable that some of those Horses that are very large jointed, mishapen in their Limbs, and narrow chested, have had their Bones diseased while they were young and pliable, not unlike those of rickety Children.

Bones and Sinews liable to Swellings.

The Swelling of the glandulous and kernelly Parts is also very troublesome, as cannot be unknown to any Farrier of Practice, though sometimes they will come to as quick and ready a Discharge as those of the muscular Flesh. And when this happens, Nature is in her full Vigour, and the Horse is otherwise sound and able to feed: But when a Horse is weaken'd and brought much under by any lingering and wasting Disease, a Swelling in the Glands will often continue hard and immoveable, and without much Pain, Increase, or Diminution; and this is very much owing to the Structure and Make of the Kernel itself, which, altho' it be but a soft Part, yet it is so compact

Swellings of the Kernels.

compact, and its Vessels so small and closely laid together, as cannot but render them easily obstructed. But yet in the Case we have mention'd, when a Horse has a lingering Disease upon him, the Swelling does not readily increase, because the Matter is but slowly derived towards it; and likewise as the Passages of the Gland are more than ordinarily enlarg'd, therefore a Quantity of Matter is discharg'd proportionable to the Supplies it receives; and the Smallness and Compactness of the Vessels, and their Disposition into an infinite number of Circumvolutions and Turnings, is also the Cause why the Swelling does not easily decrease.

Those Swellings of the glandulous Parts that turn to Impostumation and Matter, are many of them of the encysted Kind; and that is also owing to the Structure and Make of the Kernels, most, if not all of them, having little *Cysts*, or Receptacles for their proper Juices, which may be easily fill'd and enlarg'd, when their excretory Ducts are wholly, or in a great measure, shut up, as must undoubtedly happen in all such Cases.

*The Matter
examin'd.*

But we come in the second Place to take a View of those Swellings with regard to the Matter whereof they are form'd; and here it will be necessary to consider, that the Matter becomes various according to the various Disposition of Horses, or according as the Tumors are variously disposed and seated; for when they happen to be superficial and outward, the Matter is then, for the most part, dry, which depends, in a great measure, upon their Proximity and Nearness to the Skin, whereby the thinner Parts are the more easily evaporated, and cast off thro' the Pores; tho' in other moist Constitutions, the Matter will sometimes be humid and moist. The Matter derived from Membranes and Sinews is generally thin and viscid, and that which comes from Bones is oily and stinking; but the Matter which is more immediately derived from Blood, if a Horse be in good Case, is of a middle Nature, neither too thick nor too thin, neither is it too watery nor too viscid. And thus it seems to be very plain and evident, as all Matter is form'd of Blood, or the Juices produced of Blood, the Matter, in all Tumors, will therefore participate chiefly of those Juices from whence it is immediately derived.

The next thing to be regarded in the Matter, is its Colour, and this also depends upon the Disposition of the Blood. If the Blood abounds with Choler or Gall, the Matter will be yellow; and it will be more or less so, according

according as that is more or less predominant. If there is a too great Secretion of the Gall, then the Matter will be more than ordinary white; and in some Obstructions, when the Blood abounds with earthy Parts, or when these are easily separated, the Matter will look foul and dusky, and sometimes be streak'd with black Blood, and the Tumor will also look livid and of a Lead Colour. And sometimes from a various Combination of Humours, the Matter becomes of different Colours.

But *Lastly*, what we are further to observe *The Cure of Tumors.* concerning Tumors, is to lay down some general Rules for their Cure; and here it will be necessary chiefly to have an Eye to their several Causes; and first, a Tumor that comes by any outward Accident, can only be dangerous according as the Accident is more or less violent; but the least Accident, where there is a redundancy of Blood, may be troublesome, as well as when a Horse is poor and low. When there happens to be a Redundancy, that must be remov'd by Bleeding, and other Evacuations, as far as is consistent with the Horse's safety; but on the other hand, when a Horse is low, and has got some wasting Distemper upon him, besides the outward Intentions, Care must be taken to administer such Things as are proper to remove that Indisposition. And in all critical Swellings, by which we chiefly understand those which tend to the Solution of Colds, malignant, pestilential, and other Fevers, the Management must be according as the Disease is perceived to be more or less malignant, taking Care always to assist, but never to restrain Nature; but the Reader may consult the third Chapter, and those other Places where we have treated of malignant Disorders, of the Strangles, of the Vives, &c. which are sometimes critical.

The next thing to be regarded in the Cure of Tumors, is their Situation; what relates to internal Tumors and Impostumations has already been spoke to, where we have treated of Foundering and Chest-foundering, in which we have recommended the speediest Methods of Revulsion by Bleeding and Purging; but especially by those Things that promote Sweat, and keep down Pain and Inflammation. But as to external Swellings, the principal Intention is either to ripen or discuss them, according as may be most beneficial. Those which are durated and hard, without Heat and Inflammation, ought chiefly to be treated with Internals, and such as are very powerful to open Obstructions, with the assistance of those Things outwardly which

which are proper to discuss and dissolve. But those Swellings which are hot and inflam'd, ought to be ripen'd, unless when they are seated where they may cause too great a Derivation of the Humors, as on the Sheath, Fundament, Limbs, and Throat, &c. but yet if these be malignant or pestilential, it is better to run any other Hazard than not bring them to Maturity; wherefore the Medicines in this Intention ought to be such as ripen, but at the same time are not over powerful in drawing; and for this Purpose the Reader may also consult those Places where we have treated of the Bastard-strangles, and Vives, &c.

When the Tumor is seated near the Interstices of some large Muscles, it ought to be open'd as soon as there is Matter form'd within it, otherwise, if the Matter be detain'd, it may separate the Muscles, and thereby form a Lodgment for itself; and the longer before it is open'd, the larger will be the Abscess.

In the opening of Abscesses, if they be small, a large Orifice made in the dependent and lowermost Part, with the Assistance of good Bandage to keep those Parts close together, will be sufficient to make a perfect Cure; but if they happen to be large and deep, they ought then to be laid open the whole length, unless the Skin can be kept depressed by the Application of Flax into the hollow Part; for so long as there is any Lodgment for the Matter, the Abscess will be constantly fill'd. The same Method is to be observ'd, as near as possible, with respect to those Tumors that are large, and have a pretty large Cavity formed within them.

The properest Dressings in all such Cases are Turpentine, or Turpentine mixt with Honey, or the Yolks of Eggs, with a small quantity of Brandy, or Spirit of Wine; and in most Cases, where there is not an ill Habit of Body, these will be sufficient to make a perfect Cure.

But Wens, Anburys, and other encysted Tumors, require a peculiar treatment, and, for the most part, ought to be quite extirpated. The Anburys, which we observe frequently to hang at the Legs, and sometimes at divers other Parts of a Horse's Body, and consist only of a thick Jelly, or spongy soft Flesh; as these have generally a small Neck next to their Insertion, they may be taken off without much to do, only by tying a wax'd Thread round them, straitening it by degrees; and if after they are falling off, there be the Appearance of a fresh Excrecence, that may

may be kept down by the help of some gentle Corrosive, together with the use of Bandage; and for this purpose Flax, or fine Hurds, dipt in Vitriol, or Allum Water, will suffice.

But to a Wen, or any other Tumor of that kind that grows to bigness, a hot Knife must be us'd when it happens to have a narrow Root; but if you have Reason to suspect the Vessels which lead to it are become very large, whereby a too plentiful Effusion of Blood may happen, or if it be broad at Bottom, the best way is then to open it, cutting the Skin both ways across, if there be Matter within it that must be evacuated, and then the Bag and other superfluous Parts destroy'd by degrees, which may be done either by cutting or burning, or by the Use of caustick Medicines; but the Knife is the most expeditious; and if it be of Substance to keep the Heat, it may be made to answer in most Cases.

The Swellings of the Joints, and Relaxation of the Sinews, are no otherways to be treated, than by applying such things as are proper to discuss and strengthen them; but the Accidents to which these Parts are chiefly expos'd, will be particularly handled in some of the ensuing Chapters.

C H A P. LI.

Of Wounds.

THERE is no one but knows, when any Part of a Horse's Body is cut, torn, or otherwise divided, he is then said to be wounded, so that Wounds are various, and differ one from another, according to the diversity of Accidents by which they are caused; some are superficial, others deep. Wounds happen sometimes to be streight, according to the Tenure and Direction of the Fibres; sometimes they are oblique or transverse, that is, slanting or athwart. If the Instrument be sharp, the Parts will, generally speaking, be equally divided; but if otherwise, the Wound will be ragged and tore, which is usually the Case of Horses that have been stak'd.

*The Diversity
of Wounds.*

We also distinguish between the Wounds that are simple and Wounds that are complicated; those are said to be simple, where the soft Parts are divided without the Concomitancy of other Accidents; and those Wounds are termed complicated, where, besides a Division of the soft Parts, there is also a Contusion of the Flesh, a Fracture or Dislo-

cation of the Bones, all which Circumstances make the Cure of Wounds more or less difficult.

But the chief thing to be regarded in Wounds is their Situation; for albeit Wounds in the external fleshy Parts are not very dangerous, consider'd as such; yet those of the nervous Parts are often of ill consequence, when there happens to be an ill Disposition of Body, as they are apt to cause exquisite Pain; and sometimes when the small Threads and Fibres of the Sinews are ruffled and tore, they will bring on a Gangrene and Mortification of the Part; whereas when they are equally cut, they are not apt to be attended with such Accidents. But inward Wounds generally prove mortal if they pierce the *large Vessels*, the *Stomach*, the *small Guts*, the *Bladder*, the *Spleen*, the *Liver*, the *Heart*, the *Lungs*, or *Midriff*, and these are deadly upon a double or treble Account, as most of them are not only endow'd with a tender Sensation, but also a muscular Action, whereby their Re-union is hinder'd, and likewise as many of them are stored with a multiplicity of Blood-vessels, which are large; but internal Wounds, which miss those principal *Viscera*, may be cur'd; and some of these, if they be but slightly touch'd, are also sometimes curable, though not readily in brute Creatures, who cannot be brought to a Compliance with all the Requisites that are necessary in such Cases. Wounds penetrating the Substance of the Brain are also incurable, because of its softness, the multiplicity of its Vessels, and the tender Sense of its Membranes.

As for the Signs of Wounds, they are manifest to the Eye, and when they are deep or inward, are further discoverable by the Help of a Probe, and by divers other Circumstances; as for instance, if the Lungs be wounded, the Air will penetrate thro' the Wound with a frothy Blood of a Vermilion Colour. When the Stomach is wounded, there will be violent Sicknes, with a sudden Loss of Appetite, and the Chyle usually issues forth from a Wound in the small Guts, and the Urine from a Wound in the Bladder; and when the Kidneys are wounded, the Horse will stale Blood. By these and many other such Signs, internal Wounds may be known; but we shall proceed to the Cure, wherein we shall begin with some general Directions.

The Cure. And *First*, Care must be taken to stop the Blood, when there is too plentiful an Hemorrhage. *Secondly*, The Wound must be cleans'd of Dirt, Sand, Splints of Wood, or any foreign Matter. *Thirdly*, All the Applications made to a Wound ought to be

be warm, especially in the beginning. *Fourthly*, It ought not to be exposed to the Air. *Fifthly*, When the Wound penetrates downwards, and the Orifice happens to be too narrow, it ought to be widen'd either by Incision, or dilat-ed with a bit of Spunge, or some other porous Matter that will swell; but this is only to be done where Bandage cannot be apply'd. *Sixthly*, The Probe is to be as seldom as possible, neither ought there to be long Tents thrust into any Wound; for by these, Wounds that have no bad tendency, naturally often degenerate into Ulcers of the worst Kind. *Lastly*, Greasy Ointments are for the most part to be rejected, as they are apt to cause the Flesh to grow too fast; and when that happens, it must be kept down with good Bandage, or the Application of caustick Medicines; but Bandage is of the greatest importance in the Cure of all Wounds, where there are not some Circumstances to forbid its Application.

To stop the Hemorrhage, or Bleeding, the *To stop Bleed-*
best way is, before the Horse is over-much *ing.*
spent, to make Revulsion, by opening a Vein on the fore Parts, if the Wound be backwards; but if the Wound be forward, a Vein may be open'd toward the hind Parts: But in external Wounds, where the Hemorrhage is large, that is generally owing to the Seat and Disposition of the Wound, whereby some large Branch of an Artery happens to be cut; but if the Artery, from whence the Blood chiefly flows, be not very large, it must then be superficial, as about the Nose, Temples, or the skinny Part of the Legs, &c. where the Vessels are unguarded with Flesh; for albeit the Arteries in a deep Wound may pour forth Plenty of Blood while the Wound is recent and new, and that there is a free Passage; yet this occasions so great a Derivation towards the Wound, that even the Coats of all the wounded Vessels become distended and swollen, so that by their Pressure upon one another, their Orifices are shut up and squeez'd closely together; and in this Case there is seldom need of any stiptick Application to stop the Bleeding.

But when the wounded Artery happens to be very large, or much expos'd, as has been taken notice of, so that the Blood flows too plentifully, it must be stop't either by applying a hot Iron, or some cauterizing Medicine, otherwise it must be ty'd by passing a Needle under it, and then binding it with a wax'd Thread; but neither Ligature nor actual Cautery is so certain as caustick Medicines, because an Escar made by the actual Cautery is apt to fall off too soon; and

an Artery, when it is ty'd, is apt again to fall a bleeding as soon as the Threads rot off, especially one that lies superficial and unguarded, and has not the Advantage of being compress'd by the Fulness and Weight of the surrounding Vessels.

Therefore in this Case make a small Pledgit of Flax or fine Hurds, moisten it with the white of an Egg, then lay as much Powder of *Roman Vitriol* upon it as will fully cover the Mouth of the Artery, and apply it over the same; but Care must be had not to apply Vitriol, or any other caustick Medicine, where the Sinews are expos'd and laid bare, unless you can fall upon some Method to defend them from being touch'd by it, otherwise it will be apt to cause Convulsions; but in Places where these are most expos'd, as the Legs, &c. the Arteries are not very often seated close to them; and if it were so, milder Medicines might be made to answer; because what is wanting in the Medicine, may, for the most part, be supply'd by Bandage; therefore, when the Wound happens to be on the Legs, you need only apply the astringent *Crocus* of Iron, fine Bole, or Powder of dry'd Mushrooms, mixt with the white of an Egg, and spread upon a Pledgit as above directed, and over that two or three thick Compresses dipt in the same Astringent, making a firm Bandage over all.

The Dressing ought not to be removed for the space of three Days, that the Wound may be digested, and there may be no further Trouble with a fresh Flux of Blood. If a Swelling happens in the Leg, by reason of the Bandage, bathe it with warm Lees of Wine, or some good Fomentation, such as that hereafter prescrib'd for a Gangrene; afterwards dress the Wound every Day with the common Digestion. The same Method is to be followed in those Wounds, where caustick Medicines are apply'd, lest by taking off the Dressings too soon, you set them a bleeding afresh, by removing the Escar before it is thoroughly form'd.

But because the right ordering of all such Wounds as are attended with an Effusion of Blood is of the greatest Importance, there being but few Farriers who have Skill to manage them according to the Rules of Practice, especially when any uncommon Accident happens in the Cure; we shall therefore lay down a Method of making the Sympathetick Powder, which being apply'd to the Wound as a Stiptick, will not only put a stop to the Blood, but procure a speedy Re-union; and this, as *Solleysell* rightly observes, may be very necessary in the Camp, where Flies and other Insects are hurtful. *Solleysell's* way of preparing the Sympathetick

pathetick Powder, is by calcining *Roman* Vitriol in the Sun; but the following Method is much more preferable, and only requires a little more Pains.

“ Take any Quantity of *English* Vitriol, *The Sympathe-*
 “ such as goes under the Name of Bow *tick Powder.*

“ Copperas, dissolve it in Water, and filter
 “ it thro’ brown Paper, set it into a cool place to shoot
 “ into Crystals, dissolve the Crystals in the same manner,
 “ and let it pass thro’ the Paper as directed, repeating the
 “ Operation until the Crystals are transparent and pure.
 “ Set those Crystals in a clean Pan in the Sun, either in
 “ *June, July* or *August*, so long as they are calcin’d to
 “ Whiteness; when one side is calcin’d, turn the other, and
 “ in a few Days the Crystals will crumble into Powder;
 “ if they do not, they may be again beat and expos’d to
 “ the Sun, and stirr’d three or four times every Day, at last
 “ beat them into a very fine Powder, and again set them
 “ in the Sun, stirring as before for two or three Days more,
 “ in which time they will be very white, then take in the
 “ Matter while the Sun shines hot upon it, and keep it
 “ from the Air in Glasses well stop’d, and in a dry a Place.”

This is the Method of preparing the Sympathetick Powder, as it is inserted in Dr. *Quincy’s* Dispensatory; to which I shall subjoin another out of the same, that bears the Title of a restringent Preparation of Iron, sold by the Name of *Colebatch’s* Stiptick Powder, and is as follows.

“ Take any quantity of filings of Iron, *Another Stip-*
 “ and pour upon them Spirit of Salt, to the *tick Powder.*
 “ Height of three or four Fingers above them. Let them
 “ stand in a gentle Digestion till the Fermentation is over,
 “ and the Spirit of Salt is become sweet, then pour off what
 “ is liquid, and evaporate it in an Iron or Glass Vessel until
 “ half is consum’d, at which time put to it an equal Quan-
 “ tity of *Saccharum Saturni*, and evaporate to a dry Pow-
 “ der; if upon its first coming dry the Operation be stop’d,
 “ it has exactly the Appearance of *Colebatch’s* Powder;
 “ but if it be continued longer, and the heat rais’d, it will
 “ turn red. It must be kept close stop’d from Air.”

This Stiptick may not only be easily made, but is the more for our purpose, as the Doctor has made an Experiment of its Efficacy upon a Horse; his Words are these concerning it.

“ If this is not kept close stop’d, it will imbibe the Air,
 “ and flow so as to lose its Efficacy. I have been inform’d
 “ by very good Hands, that this is the Stiptick with which
 “ there was so much Noise made some time ago by the

“ Author of the *Novum Lumen Chirurgicum*, and for the
 “ Sale of which a *Patent* was procured, only in that was
 “ used Oil of Vitriol, instead of the Spirit of Salt in this;
 “ but that difference is insignificant. Of this I kept some
 “ by me for a time, to wait a proper Opportunity to try
 “ it; when an extraordinary one happen'd, by a blunder-
 “ ing Farrier cutting the *Jugular Artery* of a very fine
 “ young Horse, as he was pretending to take off some ad-
 “ ventitious Kernels that grew under his Throat. The flux
 “ of Blood was so prodigious, that the Creature must have
 “ forthwith died, had not the Fellow held fast the wound-
 “ ed Vessels, by griping the Part with his Hands, which
 “ prevented the Effusion, until I dissolv'd some of this
 “ Powder, or rather Salt, in some warm Water, and with
 “ the Curriers Shavings of Leather dipt in it, apply'd it
 “ upon the Part, where tying it as fast as the Part would ad-
 “ mit of, and haltering the Horse's Head up to the Rack for
 “ about sixteen Hours, when it was taken off, not one Drop
 “ of Blood afterwards followed, and the Part was easily
 “ incarnated, and healed up. This is a Preparation of
 “ *Maeris*, once Professor at *Leyden*, and is in the *Collec-*
 “ *tanea Chymica Leydensia*, how much soever some have
 “ pretended to make a Secret of it since.

The same Author further takes notice, that this Stiptick has been recommended inwardly to stop Fluxes, especially those of Blood; but we are very sure it may answer that End in all Wounds, when apply'd as in the Instance before recited. And in this respect it may be made use of by those who are but little skill'd in the Practice of a Surgeon or Farrier: As may also the *Powder of Sympathy*, tho' we cannot advise any one to depend upon its sympathetick Virtues.

Having said thus much concerning the first Intention, to wit, the putting a stop to the Blood, in Cases where the cut or ruptur'd Vessels are large or exposed, we shall now proceed to the other Requisites in the Cure of Wounds. But we shall in the first place take notice, that in all good Constitutions a fresh Wound will be easily cur'd, if it is not over-much exposed to the Air, as we see in many Instances, both in Brutes and human Bodies; and a Wound made according to the Direction of a Muscle, or only somewhat slanting, will heal with little or no Application, if the Horse is not put to hard Exercise; for in that Case, as often as the Muscle is contracted, the Wound will be more or less opened, according to the Force whereby the wounded Member is moved. But all Wounds that are large ought to be stich'd, and

and when that is rightly perform'd, nothing contributes so much to their Re-union, as it in some measure prevents the Inconveniencies of Motion, and likewise as it puts a stop to the Swelling; which, without a plentiful and speedy Discharge, will often cause Ulceration, together with a preternatural hardness in the Lips.

Stitching and Bandage are nearly ally'd to each other, and sometimes the one supplies the Room of the other; but most Wounds may be easily cured, when Stitching and Bandage can come in to one another's Aid. Wounds which are large and deep, and which may be press'd together with your Fingers, are the most fit to be stitch'd; but Wounds that penetrate to the Bone ought not to be stitch'd when the Flesh is much divided from the Bone, otherwise an Abscess may be form'd, which will cause the Bone to putrify; the same Caution is also to be observ'd, when by your Probe, or by a Swelling distant from the Wound, you have reason to suspect some of the Muscles are divided, as it happens in very large Contusions. In this Case Bandage is only to be made use of, with the proper Applications to the Wound; but if the Swelling continues, which for the most part happens, if at all, underneath the Wound, and therefore becomes unable to bear a firm Bandage, it must be treated as an Impostume, by the Application of ripening Cataplasms; and when it comes to Maturity, it must be opened as low as possible, that the Matter may have a free Passage and Vent, after which the Bandage will become of infinite service.

Wounds that are of a round and circular Figure cannot be stitch'd, but Nature must fill up that Space by degrees; neither can those be stitch'd which are very much ragged and torn; but in a Wound that has several Points and Angles, Stitches may sometimes be made to do service, but for this Purpose no general Rule can be laid down. *Solleysell* advises to cut all circular Wounds into a large figure, but that needs seldom be done where Bandage can be apply'd; for the only thing that makes a circular Wound hard to cure, is, when the bottom of the Wound happens to be large and loose, or bruised, or when the Wound penetrates perpendicularly downwards; in this Case, a moderate Incision downward may be made; but when a circular Wound is not very deep, or if it is not in some respect like a Well or Pit, the Application of Bolsters and Bandage to keep it firm at the bottom, will, for the most part, suffice.

*Wounds among
the Sinews.*

Lastly, The Needle is to be sparingly us'd among the sensible and nervous Parts; for although there are divers Circumstances which may require stitching, even where the Tendons are wounded; and altho' it may be more particularly gone about where there is a very sound Constitution, yet, as there is an Ichor and viscid Matter perpetually flowing from the Tendons, even in the best Habits, which cause untowardly Accidents; therefore, as these are oftentimes heighten'd by stitching, the Practitioner should be very well vers'd in Practice, to endeavour the Cure of such Wounds, otherwise than by proper and plain Dressing; for if this Operation has not always the desir'd Success on human Bodies, who can be manag'd so as to keep the Muscles, to which those Tendons belong, from all manner of Action, much less can be expected from Brutes, but especially Horses, who keep more in a standing Posture than any other, and therefore are not only oblig'd, and under a Necessity sometimes to move those Parts, but even at most times to lay a great Weight upon them.

*The manner of
Stitching.*

To perform this Operation aright, the Farrier ought to be provided with several Needles, some streight, and some crooked, and of these some ought to be more arched than others, and accommodated to Wounds that are deep, and for this End also they ought to be of different Sizes. Both the streight and crooked should be edged, and not round, that they may the more easily penetrate, and cause the less Pain; and those that are appointed for deep Wounds should be strong, that they may not break, and cause Trouble in the Operation. But in all these Things the Farriers may take Pattern from the Surgeons.

The stitching of superficial Wounds ought to be perform'd with a streight Needle, and is chiefly necessary upon Parts that are prominent and expos'd to view, where the Skin being only burst, gives way, and opens wide, tho' it be not much separated from the subjacent Flesh; and if it is not drawn together, it will leave a Baldness; or the Hair that grows upon the Part will be white, and softer than that which covers the rest of the Body, either of which becomes a Deformity upon the Cheek, the Tops of the Loins, or upon any Joint, as we sometimes observe when these Parts have been gall'd, and when there is no room for such an Operation.

But in all deep Wounds a crooked Needle must be us'd, and of such a Form as will easily make a Compass under the

the Wound; for the Farriers Method of taking the Lips together with a common fowing Needle, or Pack-needle, as I have sometimes observ'd, is quite short, nay, contrary to the Intention of stitching, and often does a deal of Mischief, and would do much more if the Stitches did not soon break, as it leaves room for the Matter to gather in the Bottom of the Wound. Therefore when the Farrier goes about the stitching of a deep Wound, he ought first, if there be congeal'd Blood within it, to clean that out, and having press'd the two sides together, he must make his first stitch at the middle of the Wound, passing his Needle so as to describe a half Circle under it, and with a strong waxt Thread, or Shoemaker's End, tie the Wound close together, the rest of the Stitches ought to be made at equal Distances, and so near each other as to keep all Parts equally close. They ought also to be ty'd in a Bow-knot, that they may be open'd in Case of Inflammation or Matter gathering in the Wound, which will sometimes happen, if the Wound is not sowed up soon after it is received.

The Cure may be finish'd by dressing the Wound every Day with a Pledgit of Hurds spread with Basilicum, or any other Digestive, washing it often with warm Wine, Spirit of Wine, or Brandy.

But in Wounds that are ragged and uneven, *Wounds that are ragged and uneven.* any loose Bits of Flesh or Skin, that cannot again be united, ought to be clipp'd off with a Pair of Scissars, and the Dressing always made so large as to cover the Wound, and not sink too much into it, for that not only retards the Cure, as it hinders the Reunion, but often causes a bad Disposition in the Wound it self, which is follow'd with proud Flesh, hard Edges, &c. If the Wound penetrates to the Bone, no kind of Ointment ought to be apply'd to it, for all greasy Things putrify the Bones; therefore let your Applications to the Bones be only Pledgits of Lint dipt in warm Honey of Roses, mixt with Tincture of Myrrh, or the Tincture of Myrrh and Aloes, until the Bone is cover'd; but if the Bone should by any Accident grow foul, the Flesh ought for the most part to be laid open as far as it is discolour'd, otherwise it will be apt to cause troublesome Symptoms; and if the Blackness does not come off with the Dressings, it ought to be scraped gently, or have a Pledgit of Lint dipt in the Tincture of *Euphorbium* apply'd to it, which will cause it to exfoliate, and cast off the Foulness; and after it is become clean, apply Honey of Roses, &c. as above directed.

But

*A dexterous
and seasonable
Application of
the Dressings,
very material
in the Cure of
Wounds.*

But a very material thing in the managing of all large Wounds, is, a dexterous and seasonable Application of the Dressings. A Wound that is much inflam'd, can bear no firm Bandage until the Inflammation abates, which generally happens as soon as it comes to matter plentifully; after that, Bandage will be of the greatest servite, and may be made tighter, as the wounded Part becomes able to endure it; but one thing ought to be carefully observ'd, that all Wounds must have Time to digest after the first Dressing two or three Days, according to the size thereof; and when a Wound, or other Swelling, happens near any Cavity, any such Cavity ought always to be filled with Hurds or Bolsters of flaxen Cloth, and kept there with Bandage. In this respect the following Instance will be of service.

*An Observa-
tion.*

A Horse was wounded with the Point of a Fork on the outside of the Hough, a little above the Joint, which being a tender, sensible Part, occasion'd violent Pain, accompanied with Lameness, and brought such a sudden Flux of Humours towards the Joints, that all the Cavity on each Side and beneath the Master-sinew was swell'd to a prodigious degree, and in a short time fill'd with Matter; and as soon as the Matter was press'd out of it, it always filled again, which would soon have corroded the Sinew. I advis'd the Farrier, after pressing out the Matter, to fill up the empty Space on each side under the Sinews, with Hurds dipt in Spirit of Wine, to keep the divided Skin together, and prevent the Matter from falling into it, which, with the Application of a strengthening Charge round the Joint, and an easy Bandage, made a perfect Cure in a few Days.

*Internal
Wounds, how to
be managed.*

We shall continue with some Observations concerning inward Wounds, which, in a great measure, depends on the right Regulation of a Horse's Feeding; for when a Horse is inwardly wounded, he ought to be restrained from all such Food as is any ways hard and binding, having nothing allow'd him but scalded Bran, and sometimes a little boil'd Barley. His constant Drink ought to be Barley-water, and at first a little *Sal Prunelle*, or purify'd Nitre, dissolv'd in it, as has been prescrib'd in a simple Fever. The following Balls may also be given for three or four Days, to secure him from bleeding inwardly.

" Take

" Take Sperma-Ceti two Ounces, Japan Earth, or Bole,
 " four Ounces, Gum Tragacanth in Powder one Ounce,
 " Sugar of Lead half a Dram : Let these be form'd into
 " Balls, being first made into a stiff Paste with Conserve
 " of Red-roses, and a small quantity of Wheat-flour, one
 " half to be taken in the Morning, and the other in the
 " Afternoon, before his Barley-water, keeping him bridled
 " for the space of two Hours thereafter.

If the Horse becomes bound in his Body, emollient Clysters may be given him, of Mallows, Marsh-mallows, the Herb Mercury, the Roots of Marsh-mallows, and such like Things, adding no strong Purgative, but rather four or five Ounces of Treacle or Honey, with a sufficient quantity of Oil or Butter ; and if the Guts be wounded, the Use of Clysters must be even laid aside also ; and if his Diet prove not enough laxative, he may be provok'd to dung by the following mild Suppository.

" Take a Pound of Honey, boil it in a Pan or Skillet,
 " until it turns to a dark brown Colour, stirring it always,
 " then take it off the Fire, and when it begins to be cold,
 " make it into a Roll four or five Inches long, and intro-
 " duce it into the Horse's Fundament immediately, other-
 " wise it will soon dissolve and turn liquid." Castile Soap may also be used in form of a Suppository, when it is necessary to provoke your Horse to dung.

Into the Wound may be pour'd, or gently injected, red Wine, with Honey of Roses made blood-warm, and outwardly it may be cover'd with a Pledgit spread with *Basilicum*, or any other proper Digestive, and above that a Compress of flaxen Cloth made into several Folds, bound on with a Bandage, and over all a Cloth with Buckles and Straps, to keep his Body firm. The same Method may also be observ'd in all Wounds that are accompanied with a Fever, only the Balls above prescrib'd need not be given but where there is a great Expence of Blood ; and if the Clysters require to be quickned, that may be done by dissolving in them a Handful of common Salt.

CHAP. LII.

Of Gunshot Wounds and Burns.

GUnshot Wounds are distinguished by their Situation, Size, and Figure ; some are very dangerous, some altogether incurable, when they happen to penetrate the Brain, or other noble Parts ; and those which shatter the Limbs
 of

of a Horse may also be look'd on as incurable, since a Horse in that Condition is able to yield no further Service. Their Size and Figure depend upon the Instrument wherewith they are inflicted, and also renders the Cure more or less certain; for a small Wound is more easily cur'd than one that is large, and a Wound that is circular and round, made with a Bullet, than one which is ragged and torn, such as happen sometimes by Splints, Pieces of Iron, Stones, &c. but however they differ in these respects, they are all of them accompanied with Loss of Substance, Contusion, and bruising of the Part; and for this Reason no Wounds made by Fire-arms are liable to such great Hemorrhages of Blood, as those made by a sharp and cutting Instrument.

*The Cure of
Gunshot
Wounds.*

The first Intention in the Cure of Gunshot Wounds, is to fetch out the Bullet, or other foreign Matter whereby they are made, but that is not always practicable; for Bullets are oftentimes lodg'd within the Cavity of the Body, and in the thick fleshy Parts, where the bringing of them out is by no means to be attempted; and sometimes, after several Years Habitation, they fall more outwards, and upon Parts of more slender Substance, and are cast out by Impostumation, or brought away by Incision. However, the Practitioner ought at first to make Trial, yet not so as to tear the Flesh too much; but if his Endeavours are to no purpose, he ought to make a Counter-opening on the outside, towards the bottom of the Wound, where he shall perceive any hardness, nevertheless without touching the large Vessels; and by this means he may draw out the Bullet with his Fingers, or any convenient Instrument; but this Method of Counter-opening is the more necessary, and the more immediately to be gone about, when pieces of Timber, Stone, or Iron, or other extraneous Bodies lie in the Flesh, as all such things are apt of a sudden to cause very bad Symptoms, because of their unevenness.

The next Thing to be done in the Cure of Gunshot Wounds, is to bring them to a good and laudable Digestion, that they may cast off the mortify'd Flesh; to effectuate which, nothing can be better than the common Digestive, with a small Mixture of Oil of Roses pour'd into it every Day; let the Wound be also often cleans'd with Spirit of Wine, and all the hot and inflam'd Parts about it bath'd with the same. When the Inflammation is very great, and like to be attended with a Fever, a moderate quantity of Blood may be taken, and laxative Clysters administer'd, and

and a Poultice apply'd of Barley Flour, Fenugreek Meal, and Linseed Meal boil'd in Milk till it be thick, and a sufficient quantity of Ointment of Marsh-mallows to make it moist; adding also an Ounce of Camphire powder'd to every Porringer full of Poultice. This may be apply'd hot twice a Day over the Inflammation, putting only a very short and soft Tent into the Orifice. But if the large Vessels be wounded, and send forth an immoderate Flux of Blood; in that Case, the first Dressing may be made with a soft Tent, dipt in a Solution of the Stiptick Powder, describ'd in the preceding Chapter; and if the Wound penetrate thro' any Member, both Orifices must be dress'd alike. If the Wound be among the Sinews, or other nervous Parts, Oil of Turpentine, mixt with the common Digestive, may be apply'd to it, bathing it now and then with camphorated Spirit of Wine. The Cautions laid down in the preceding Chapter are also to be observ'd, with respect to Bandages and Dressings, with this further notice, that no Gunshot Wound can bear any Bandage, further than to keep on the Dressings, until the Escar and mortify'd Parts are discharg'd.

As to Burns, whether they be made with *Burns.* Gun-powder, or any other way, they ought, in the first place, to be bath'd with Spirits of Wine camphorated, and afterwards anointed with Oil of Roses, St. John's Wort, or Linseed Oil, or Butter. If the Burn be new, the Heat and Inflammation may be taken off, by applying immediately to the Part pounded Onions; some use the Juice of Onions and Verjuice mix'd together; black Soap and common Salt has the same Effect; there are others who use Quick-lime beat into an Ointment with fresh Butter; but nothing is better, or so safe, as the camphorated Spirits, applying afterwards the following Cataplasim.

" Take Mallows and Marsh-mallows, of each four large
 " Handfuls, Linseed one Pound. Boil them in four Quarts
 " of Water, until most of the Moisture be dry'd up, pulp
 " them thro' a Sieve, and add a Pound of fresh Butter, and
 " three Ounces of Camphire in Powder, mix them all toge-
 " ther in a Mortar, and smear the Part with it, or apply
 " it spread pretty thick on a piece of limber Canvas.

But if the Burn be deep, it must be scarify'd with a Fleam, and the same Poultice apply'd over it to hasten the Escar, or burnt Parts, to a Suppuration; Bleeding and Clysters may be also comply'd with, when there is excessive Heat and Inflammation, &c.

C H A P. LIII.

Of a Gangrene and Mortification.

A Gangrene is a sudden, violent, and excessive Inflammation, with intolerable Pain, and is no other than a beginning Mortification.

The Cause. The Cause is sometimes from an ill Habit of Body; but, for the most part, from a Puncture, or Wounds in the tender, sensible Parts; or when Splints of Bones, or other sharp and pointed Matter, stick into the Flesh or Sinews; and moreover the ill Management of any large Wound whatsoever may, and often brings on a Gangrene and Mortification.

The Signs. As to the Signs, besides the sudden, violent, and excessive Pain, the Part looks of a deep red, inclinable to purple; whereas in a Mortification, there being an absolute Stop put to the Blood, the Part becomes black, soft, perish'd, dead, and without Sense.

The Cure. The Cure, while it is yet a Gangrene, consists chiefly in the Application of spirituous Things, as Spirit of Wine camphorated (*viz.* an Ounce of Camphire to every Pint of the Spirits) used alone, or mixed with Spirit of Scurvy-Grass, or Spirit of Turpentine; a Fomentation made as follows, will also conduce very much to the Removal of a Gangrene.

“Take St. John's Wort and common Wormwood, of
“each two Handfuls, Centaury and Camomile Flowers, of
“each one Handful, Bay-berries six Ounces, common
“Ashes one Pound: Boil these in six Quarts of Water until one half be consum'd; and to the strain'd Decoction
“add Spirit of Wine camphorated one Quart.” Bathe the Wound, or the gangreen'd Part, with flannel or woollen Cloths dipt in this Fomentation; and after they are wrung out, apply the Cloths almost scalding hot to the Part; it may be likewise wash'd with the Fomentation, adding a sixth Part of the Spirit of *Sal Armoniack* at the time of using it.

All Things that are proper to promote Sweat are to be taken inwardly, such as have been prescrib'd to remove Chest-foundering, &c. But if, notwithstanding all these Means, the Gangrene does not yield, the Practitioner must with a Fleam or Lancet, scarify to the Quick, that the Part may be brought to Suppuration, having in readiness Horse-dung boil'd in Ale or Wine, to be applied hot as a Poul-tice;

tice; and as soon as the Wounds come to matter, they may be cleans'd with *Ægyptiacum* made hot; and if there be still a very great Foulness and tendency to a Mortification, the Ointment may be mix'd with Butter of Antimony, which is a very powerful Remedy; or with every Ounce of *Ægyptiacum*, may be mixt sixty Drops of *Aqua fortis*. *Solleysell* advises Lime-water, and when that proves not efficacious enough, he recommends the following, viz.

“ Take crude Allum one Pound, German Copperas, grossly beaten, half a Pound, Verdegrease in fine Powder three Ounces: Boil all together in a Gallon of Vinegar, to the Consumption of one half; then, without straining the Liquor, reserve it for use in a glass Vial; and if this be too weak, he advises two Ounces of *Aqua fortis* to be added to each Quart, shaking them well together.

The Liquor is to be hot, and the Part to be dress'd with Pledgits of Flax or Hurds dipt into it.

In all large Mortifications, the Farrier must, with a sharp Instrument, cut and extirpate the dead Flesh, taking care not to hurt any of the Nerves or Sinews that are sound or recoverable, either with his Instrument or Applications; but let his Application to them consist chiefly of such things as are spirituous, dressing with Honey of Roses beat up with the Yolk of an Egg, with a fourth part of camphorated Spirit of Wine; and afterwards all such things as are cleansing, and proper to promote a laudable Growth of new Flesh.

CHAP. LIV.

Of the biting of venomous Beasts.

WOUNDS made by the biting of venomous Beasts are frequently mortal; for the Poison communicated to the Blood causes in it so speedy a Rarefaction, that the whole animal Frame is put into an immediate Disorder: The wounded Part becomes swell'd, inflam'd, and of a livid Colour, and its Progress much more sudden than any Gangrene proceeding from whatsoever other Cause.

The biting of a mad enrag'd Dog is not so poisonable as is generally suppos'd, but only as those Creatures are apt to strike their Jaws with great force, whereby they sometimes wound and bruise the Sinews and nervous Parts; but the Bite of an Adder is plainly venomous and deadly, from many Instances both among Men and Brutes; and the Bites
of

of those Animals are constantly follow'd with a Drop or two of greenish Matter, which, by its corrosive Quality, poisons the Wound, and infects the Body.

The Cure. There are infinite Ways of curing those Bites; some give the Fire immediately, and some cut out the Bit that is wounded; but these Operations cannot be allow'd of in all Parts, but chiefly when the Wound is made in the Flesh, and free from the Nerves and Sinews; others only apply Garlick, Onions, Bay-salt, and Bacon, stamp'd together into an Ointment. Others use stamp'd Rue, Mustard-seed, pickled Herrings, and black Soap, with a sufficient quantity of Deers-suet or Bears-grease; and there are some who only lay over the Wound Venice-Treacle or Mithridate, which are very good, especially if the spirituous Embrocations directed in the preceding Chapter be also comply'd with, and us'd often. The Viper-catchers, who are often bit with Adders, cure themselves by anointing the Wound immediately with Adders Fat, which they always keep in readiness in a Gallypot. The Certainty of which Cure has been also evinc'd, by the Experiments of a great and eminent Physician made upon Dogs, who very reasonably ascribes the healing Virtues of that Fat to its clammy and viscid Parts, but especially as it is more penetrating and active than any other oily Substances, whereby he supposes it to involve, and, as it were, sheath the volatile Salts of the Venom, which are the Instruments of those deadly Mischiefs that attend the biting of such Animals. And for the same Reasons, the Vipers Fat or Grease may, no doubt, be of service in all other Bites or in venom'd Wounds.

But when the Poison is once got into the Mass of Blood, the chief Part of the Cure must be owing to inward Means, which ought constantly to be used at the same time proper Applications are made outwardly. *Solleysell* recommends the Tincture and Essence of Vipers; which, indeed, is not improper, only that their Scarcity makes those Preparations very dear in our Country. However, to a Horse of great Value, a Dose of two or three Ounces of the Powder of dry'd Adders might be given in a Pint of Canary, and repeated several times. But the Method laid down for the Cure of Pestilential Fevers, as it consists chiefly in the use of Counter-poisons, may be follow'd in all such Cases; and as soon as the Malignity and Venom is destroy'd, the Sores may be treated as other Wounds or Ulcers.

C H A P. LV.

Of Ulcers.

ALL Sores that have any evil Quality ingender'd in them, so as to hinder the Re-union of the Parts, are term'd Ulcers, and these are distinguish'd according to their Size, Situation, or Degree of Malignity; some are superficial, and only appear on the outward Parts; others are deep, and are therefore term'd cavernous or fistulous, which Names are borrow'd from their Figure. The superficial Ulcers are divers, and attended with divers Qualities, some being soft and crusty, sending forth a viscid Matter of a cadaverous and Carrion-like Smell, from whence they are also call'd putrid; others are fungous and hard Excrescences, appearing in divers Aspects; and some have hard and scirrhus Edges, which, in Horses, are very thick, having their Bottom of a livid or dusky Colour, full of little *Papillæ* and Unevennesses. The cavernous and fistulous are also distinguish'd from each other, the cavernous being deep and broad at Bottom, full of little Holes, with a small and narrow Orifice, from whence there continually issueth a virulent, corrosive Matter; whereas the fistulous Ulcers have long, strait, and deep Holes, which sometimes communicate with one another like a Coney-burrow, their Sides callous and hard, and the Matter sometimes corrosive, and sometimes not. There are other Sorts of Ulcers taken notice of by the Writers of Surgery, as the Cancerous, Corrosive, &c. but the first is seldom or never to be seen in Brutes, and the last seems not to be a proper Name of Distinction for any particular kind of Ulcer, that being an evil Quality which is more or less to be met with in most Ulcers, and by which they may be look'd upon to be more or less malignant.

In what manner Ulcers are distinguish'd.

Ulcers are also distinguish'd, with respect to their Causes, whence some are called primitive, and others degenerate; but it is sufficient for the understanding this matter, to know that all Ulcers take their Origin immediately from Wounds, Bruises, Tumors, or other Eruptions and Breakings out of the Skin, some of which turn Ulcers by ill Management, and others from a vicious Disposition in the Blood.

As to the Signs, they are manifest from what has been already said of their several Kinds, we shall therefore make some few Observations concerning their Prognosticks.

*The Prognos-
ticks and Cure.*

And *First*, An Ulcer that is superficial is less dangerous than one that is deep, as it may, for the most part, be cur'd by manual Operation, only with the assistance of proper Applications: Neither need I acquaint any one, that a small Ulcer is more easily manag'd than one that is large. But, *Secondly*, An Ulcer proceeding from a Malignity in the Blood, &c. whether it be large or small, superficial or deep, is more dangerous than one which is only degenerate, and not attended with such bad Circumstances. And *Thirdly*, As a degenerate Ulcer may, by long continuance, create an evil Disposition in the Blood, by hurting the common and ordinary Secretions, and inducing an ill Habit, it may therefore be as dangerous and bad to cure as any; and a sudden and injudicious Cure of such an Ulcer, is oftentimes the Cause of some other Disease. *Fourthly*, Ulcers that are form'd of Abscesses in the Hips, Loins, in the thick Part of the Shoulders under the Blade-bone, and in the Joints, and have Communication with the Bones, as these lie out of reach, they are therefore very difficult and hard to be cur'd; and if the Cavities of such abstruse Ulcers be large, they will soon bring the Body of a Horse into a Waste. *Fifthly*, Ulcers in the dependent Parts, as those of the Legs, are very obstinate, as they become the Sink and Drain of all the Humours, but especially as the Matter proceeding from the Tendons, &c. creates a very ill Disposition in them. *Lastly*, All Ulcers in the Lungs, Kidneys, Liver, and other inward Parts, generally prove mortal, sooner or later, according as they are situated nearer, or at a distance from the larger Vessels, and according to the other Circumstances that may attend them. But we have already taken sufficient notice of those kind of Ulcers, where we have treated of broken-winded and consumptive Cases, and of Heetick Fevers, &c. having recommended, for their Cure, the use of cleansing, healing, and balsamick Medicines inwardly, with a proper Regulation in the Feeding and Exercise. As to outward and superficial Ulcers, with their different Accidents, they have been also sufficiently handled in the Forty-eighth Chapter, both as to Externals and Internals. The Ulcers of some particular Parts have likewise been taken notice of, as the Glanders, &c. Those of the Legs and Feet, and other dependent Parts, shall be treated of when we come to the Diseases of those Parts. It remains therefore that we put a Period to this Subject, by laying down some Directions concerning the Cure of those Ulcers that

that are term'd cavernous and fistulous, and likewise such of them as are abstruse, and form themselves into several Meanders and hidden Abscesses among the Bones and fleshy Interstices, tho' in the latter Circumstances we can give the Practitioner but little Hopes of Success, for the Reasons already alledg'd; yet, so long as a Horse continues serviceable, the proper Means ought to be used.

And therefore, whether such an Ulcer proceed from an old deep Wound, or any other Cause, the chief Thing to be done, is now and then to inject proper Liquors into it, forbearing the use of those Things that are very corrosive; for albeit corrosive Applications are sometimes proper in Ulcers that are superficial, and where the Escar can be brought off by the proper Dressings, or the Help of an Instrument, and where a fresh growth of superfluous Matter can be suppress'd by Bandage; yet in the Case now before us they are often hurtful, as all such Applications cause Accidents that ought to be remedy'd by Art, and ought therefore to be within the reach of the Artist; for which Cause, the properest Liquors to be injected into all such Ulcers, are Decoctions made of the Roots of Briony, Birthwort, Flower-de-luce, &c. with a third part of Spirit of Wine; or rectify'd Oil of Turpentine, common Honey, or Honey of Roses, may be also made use of in the same Intention; and when there is a Foulness in the Bones, which may be known by the thinness, oiliness, and stench of the Matter; in that Case, a Tincture drawn with Wine from Myrrh, Aloes, Frankinsence, Olibanum, Saffron, Cinnamon, and such like things, will make a very proper Injection to be used sometimes. To the Wound may be applied Pledgits of Flax dipt in the same Liquor, or some good Digestive, and over the Dressing a good sticking Plaster. The Injections should always be made warm; and when the Part can admit of firm Bandage, it will never fail to be of service.

But those Ulcers, which, upon trial with the Probe, &c. are found to be within the reach of an Operation, ought to be laid open, avoiding, as much as possible, an Effusion of Blood, by dividing the large Vessels, and the Inconveniences that may happen by cutting the nervous and sensible Parts: After Incision, any such Ulcer is to be treated as a fresh Wound, only that instead of a Re-union, by closing the Sides again, they must be kept open with Dossils of Flax dipt in Stiptick-water the first Dressing, and afterwards in some good Digestive, that Nature may fill up

the whole Space with a Growth of new Flesh. If there be still a bad, ulcerous disposition in the Part, cleansing Ointments, as *Taflicum* mixt with red Precipitate, or *Egyptiacum*; or, if necessary, strong Corrosives may be made Use of; Copperas-water, Lime-water, or a Solution of Blue-vitriol, or any of those directed in those Parts of this Treatise in the like Intentions, may be also comply'd with to wash the Sore; if the Bone be foul, the Method laid down in the 51st Chapter, ought also to be follow'd. In a Fistula, the hard callous Sides must be scarify'd, or touch'd with a Caustick, to bring them even and smooth. The Horse may be also purged once or twice, and afterwards go under a Course of the Antimonial or Cinnabar-balls, &c. but the Reader may consult the 48th Chapter.

C H A P. LVI.

Of Cauterizing, and giving the Fire.

CAuterizing is perform'd by an Instrument made hot, or by corrosive and burning Medicines; and these are either natural, or artificial, which may be made stronger or weaker, according to the several Intentions in which they are used. The first is called the *actual* Cautery, and the last the *potential*.

We make Use of corrosive and burning Medicines to cleanse and destroy all Foulness which obstructs and hinders the Cure of any Ulcer, to keep down a preternatural Growth of fungous Flesh, to eat away Excrescences, to open Abscesses and Impostumes, and moreover to stop up the Mouths of Blood-vessels, thereby to prevent an Hemorrhage of Blood. The actual Cautery is also made use of to most of the same Purposes; but as we have taken notice of these things already, and reduced them to Practice, with the necessary Cautions in their Applications; we shall not therefore spend the Reader's time in repeating them over again, but proceed to the other Intentions of Cauterizing, which in a more especial manner go under the Denomination of *Giving the Fire*.

The Fire is so antient in the Practice of Surgery, that it seems to have been one of the first Methods used to remove Pains of the Joints, &c. proceeding from cold, glutinous Humors impacted in them, as may be learned from *Hippocrates* and others; and tho' it be now greatly in disuse among us in these Intentions, yet it is to this Day very much practis'd by the *Aegyptians* and *Arabs*; and it is reported of the

the *Moors*, and other *Barbarians*, that they fear their Arms and Shoulders, only to strengthen them to draw the Bow. The antient Method was by burning Flax or Cotton under the diseased Member made into a Pyramidal Form, that the Part might be inured to it by degrees, and so enabled to bear a necessary Augmentation of the Flame. And Sir *William Temple* had seen such good Effects from it, that encouraged him to write his Essay concerning the Cure of the Gout by *Moxa*, which is only a kind of Cotton set on fire in this manner.

But whatever Approbation may be given to this Method of curing Diseases in the human Body, it is certain the Effects of Fire are very extraordinary with regard to Horfes in old Grievs in the Joints, Sinews, and nervous Parts, after they have bid a defiance to all artificial Compositions whatever; neither will this be thought strange, if it be consider'd, that those Parts are very compact and solid, being compos'd of an infinite Number of Fibres and nervous Threads, laid so close together, that there is not a Cavity or Interstice to be discerned in them when cut asunder; and therefore when these are obstructed, nothing can be supposed to relieve them, but what is of the most powerful Efficacy.

The Use of the Fire.

Now it is very plain that actual Fire may be of the greatest Importance in the removing such obstructions, and that in a twofold Respect. *First*, As by cauterizing and burning the Outside, there is a Discharge made, and of consequence a Derivation of Matter from the obstructed Part, which must give more Liberty to the inclosed Fluid; and *Secondly*, As the Heat, communicated in this manner by the active Particles of Fire, must needs give a sort of new Life and Motion to the viscid Juices, which are thus compacted, whereby they become more fitted to make their way thro' their proper Vents and Passages, and likewise as it forces the relaxed Fibres to contract themselves.

This is so certain an Effect of Fire, that it is even plain in those Instances, where many of the poorer sort among the Country People, cure themselves of the Kibes, &c. by holding their Heels over burning Coals, or a hot Pair of Tongs, tho' they do not fear the Skin; and many of the good Effects which proceed from the Application of Ointments to hard obstinate Swellings and aching Pains in Horfes, are more owing to the hot Bar of Iron made Use of in the rubbing in of the Ointments, than any medicinal Efficacy in the Ointments themselves, several of these being no better than common Hogs-lard.

And as the Fire becomes more useful in all such Intentions, by removing settled Obstructions, so it is of no less importance in *Ring-bones*, *Quitter-bones*, *Scratches*, and in fine, to loosen all grisly and horny Excrescences that grow out upon the Legs and Feet, or any other Part of the Body, where, by searing their Substance, and piercing the Skin near the Root or Insertion, a stop is put to the Humours that nourish them, so that they are made to rot and fall off.

The manner of giving the Fire.

Solleysell lays down three important Directions in giving the Fire. The *First* is, not to press too hard upon the Part. The *Second*, To let the Knife be red-hot, but not flaming. And the *Third*, To heat the Knife or Instrument in a Charcoal Fire. The two first of these Directions are absolutely necessary, and the last may be comply'd with according to the Artist's Conveniency.

In all Griets of the Sinews and nervous Parts, the Fire is to be very sparingly given, and a drawing Knife is certainly the properest Instrument, tho' there are some who make use of a large gold Coin, from a Conceit of its having greater medicinal Virtues than really belong to it. Some content themselves with Silver, and there are others who prefer Copper, from an Opinion of its being a Metal that resists Putrefaction; and among these is our last mentioned Author. But most of our *English* Farriers make use of Iron Instruments in all their cauterizing Operations, which, if they be smooth and well polish'd, are as good as any, and in this it is sufficient that they have the Example of most Surgeons for their Authority.

The Knife should be rounded on the Edge, and pretty thick, that it may keep the Heat as long as possible; it ought also to be heated in a very clear Fire (if a Charcoal Fire cannot be had) and afterwards rubb'd upon a woollen Cloth, that no Dirt or Ashes may stick to it, and until the flaming redness is wore quite off; then the Farrier must with a steady, dexterous, and light Hand, draw his Lines or Rases on each side the Joint or Sinew, always following the Course of the Hair, without making cross Lines, for, besides that they are of no importance in the Cure, they cause a very great Deformity. A due Care must also be had, never to pierce the Skin, but rather repeat the Strokes the oftner, until it becomes of the Colour of a pale Cherry; for if the Fire happens to touch the Sinews, it will be apt to cause Convulsions; and if the Horse survive these Disorders, he may hereafter become irrecoverably lame.

But

But when the Grievance happens to be on the Hips, Shoulders, or other fleshy Parts, or when the Fire is given to disperse any obstinate flegmatick Humour, that cannot be brought to Suppuration, the Artift may go on with some boldness ; and besides, that the Lines may be made of any Figure, either in shape of a *Palm Arrow* or *Shield*, or what the Farrier pleases, the Skin ought also to be pierc'd more or less, according to the Situation and Urgency of the Grievance, that a powerful Revulsion may be made, by drawing away a plentiful deal of Matter. There are many Instances of Cures of this kind to be met with among Horses, and even some in the human Body, where, by burning the Hip with a hot Iron, the *Ischiatick* Pains, and other nervous Obstructions, have been altogether removed. But in Cases where the Skin is to be pierced, it ought to be done from below upwards, that the Matter may flow downwards, the better to prevent an ulcerous Disposition in the Sores ; and into the Orifices or Holes may be introduced little soft Tents of Flax dipt in warm Basilicum, or any other suppurative Ointment ; for if this be cramm'd with hard Tents, the Anguish that must necessarily happen after giving the Fire, will be apt to create a Fever.

All the fear'd and burnt Parts ought immediately to be bath'd with Spirit of Wine, and afterwards anointed with a Mixture of Bees-wax and Oil melted together, or with common Tar, until the Escars fall off ; but if there be a very great Heat and Anguish, and a tendency to a Swelling, which is apt enough to fall upon the Legs, especially of those Horses that are tender and washy ; in that Case camphorated Spirits may be used two or three times a Day, and, if need require, the Cataplasm directed for the Cure of Burns. But these Accidents may in a great measure be prevented, and the whole Intention more effectually answer'd, if, before the Operation, recourse be had to Fomentation and Baths, or attenuating Oils, or such as the Oil of Earth-Worms, or the Soldiers Ointment ; for by these means the Grievance will more easily yield to the Impressions of the Fire, and the burnt Parts come sooner to a Separation.

I need not acquaint any one, that the Horse must be secur'd with Collars, or such other Engines, as can be made effectual to prevent his licking, biting, or rubbing the Scabs, which is very common when they begin to heal, otherwise it will cause a great Deformity, and such an one as cannot be easily remedy'd. What relates to the firing of *Ring-*
bones,

bones, Quitter-bones, and Scratches, &c. shall be treated of in their proper Places.

C H A P. LVII.

Of Rowelling.

Rowelling is an artificial Vent, made to discharge noxious Humours; but the Effects of Rowelling are not the draining away of ill Humours, as most People believe; for the Matter that proceeds from the Rowel is form'd of

The Use of Rowelling.

the Blood; so that by it both the good and bad is evacuated: And therefore all that can be propos'd by Rowelling, is to make a Revulsion, or Diversion from any Part that is weaken'd or relax'd by old obstinate Obstructions; and in this Sense it is useful in many of the same Intentions as the Fire, and is very profitable in all Aches, cold, flegmatick Swellings, and even sometimes in Lameness and Infirmities of the Legs. It is also sometimes a Relief, where there is a Fullness and Redundancy of Humours; and in most Diseases of the Eyes: But Rowelling is absolutely hurtful to Horses that are poor, lean, and hide-bound, or to those that are hectic and consumptive, &c.

There are two sorts of Rowels, *viz.* A hair Rowel, and *French* Rowel. The one is what Surgeons call a *Seaton*, and the other a *Fonticle* or *Fontanel*; but the *Fonticle* or *French* Rowel is by many preferr'd, as it is not so apt to cause an Abscess, and is therefore more easily dry'd up. But in Cases that require a considerable Discharge of Matter, a small Abscess is not to be altogether feared; because such an one as happens upon Rowelling, may be easily enough cured by the Application of Bolsters and tight Bandage.

I need not lay down any particular Directions concerning this Operation, since it is so common, that even every Country Smith can perform it; I shall only take Notice, that the *French* Rowel ought always to be put in the Interstices or Furrows, that go between the Muscles, either towards their Origin or Insertion, or any other Part throughout the whole Tract of any Interstice; but to prevent a too great Abscess, the Hair Rowel may be better plac'd towards the lower Part of the Interstice, where the Furrow is not so deep, and where the Matter will easily run off; but Care ought to be taken not to put in the Rowel too near the Tendons, but where there is some Substance of Flesh.

C H A P.

C H A P. LVIII.

Of Gelding and Curtailling of Horses.

THE Gelding of a Foal is an easy Operation, and seldom attended with any ill Accidents. But if a Horse's Stones should be bruised, or otherwise hurt, and so become irrecoverable, the extirpating of these will require the Skill of a good Artift.

The Horse being first cast on a Dunghil, or other soft Place, the *Scrotum*, or outward Case, is to be cut open on each side, when both Stones are to be taken away, and where there is but one, that Side where the diseased Stone lies; afterwards tie a waxt Thread round the Strings, to stop the Blood, and with a Pair of sharp Scissars or Knife, cut the Strings between the Ligature and the Stone, applying to the Wound Pledgits dipt in the common Digestive mixt with Spirit of Wine, laying over all Compresses and a Bandage, such as has been directed to suspend the Sheath. If an Inflammation happens, it is to be treated with warm Fomentations and spirituous Things, and the Horse kept to an opening Diet, with Barley water for his Drink.

This is a more safe Method than what is generally practis'd, *viz.* by applying the actual Cautery, and then filling the Place with Salt; for albeit it may succeed with a Colt or Foal, while the spermatick Vessels are very small, yet it must needs expose a Horse to many Accidents when he is come to his Maturity.

As to the curtailling or docking of Horses, *Curtailling.* all that I intend upon the Subject, is only to advertise the Farrier, that his Searing-Iron should be smother and better polish'd than what is generally made use of, and that it should be rubb'd very clean on a woollen Cloth, and the Metal harden'd; for when it is otherwise, the *Scoria*, or Sparks that fly off from the Iron, are apt to cause an intolerable Anguish, which falls down into the Fundament and Sheath: Neither should the Iron be at any time apply'd flaming hot, or else it will bring the burnt Part along with it; for want of this last Caution, I have seen the Iron apply'd two or three times before an E car could be form'd, which is always of bad consequence, as it must be a considerable time before the Bone is cover'd.

CHAP. LIX.

Of the Lampas.

THE Lampas is an Excrefcence in the Roof of the Mouth, which hinders a Horfe from feeding, and happens ufually to young Horfes. It is cur'd by applying a hot Iron made for that Purpofe, and it is fucceffively performed in all Parts of the Kingdom; fo that there is no need of any Caution, but only that the Farrier do not penetrate too deep, fo as to fcale the thin Bone that lies under the upper Bars, for that would be attended with very troublefome and dangerous Symptoms.

CHAP. LX.

Of the Barbs.

THESE are fmall Excrefcences under the Tongue, which may be feen by drawing the Tongue afide; and are constantly cur'd by cutting them off as clofe as may be, with a Pair of Sciffars, and rubbing the Place with Salt.

CHAP. LXI.

Of the Tick.

THOU' we find this among the Difcafes of Horfes; yet it is, by the beft Judges, look'd upon to be an ill Habit rather than a Difcfe, which may probably at firft proceed from the Pain and Itching that happens in the breeding of Teeth. There are divers Methods ufed to break a Horfe of this Habit, but the moft approved is, to make him eat in a Place where there is no Manger, tying him with a Buckle to the Wall, and giving him his Oats in a Haverfack.

CHAP. LXII.

Of Wolves-Teeth.

THIS is a Diftemper which happens to Horfes in the decline of their Age, when the Gums are wore down; the Grinders don't meet one upon another, but grow either outwards or inwards, fo that their Points prick the Gums or Tongue, and hinder a Horfe's Feeding. The ufual Method of Cure is to open the Horfe's Mouth with the Upfet, and with a Gouge and Mallet ftrike off thofe fharpe Edges, and afterwards file them down fmoother; but it is much fafer

fer to make use of a well temper'd File only, tho' it will take a little more time.

C H A P. LXIII.

Of Gigs, Bladders, and other Diseases of the Mouth.

THE Mouths of Horses are subject to several Infirmities, which, by reason of the softness and spunginess of the Parts, are often troublesome, and cannot be easily remov'd without the Fire, or some corrosive Medicine. The Gigs and Bladders, for the most part, grow out on the inside of the Lips, and sometimes towards the Palate; but those of the Lips are the largest. The usual Method of Cure is by slitting them open, and discharging the Matter, afterwards washing them with Salt and Vinegar. Sometimes a Horse's Mouth is wounded by a misshapen or rusty Bit, and by several other Accidents; all which, either from Neglect, or an ill Disposition in the Blood, will create those sort of Ulcers the Farriers call *Cankers*. In such Cases, the best way is to make use of a small round Searing-Iron, moderately heated, which may be introduced thro' a brass Pipe, to defend it from touching any other Part; and when the Escar falls off, it may be touch'd now and then with a Sponge dipt in Copperas-water, until it is cured. The falling down of the Palate, or, more properly, the Relaxation and Swelling of the *Uvula*, is also a Disease to which Horses are subject upon catching Cold, tho' I do not find it much taken notice of by Farriers; yet Mr. *Snape*, in his Anatomy, says, he has met with it several times. The Cure is by blowing Pepper upon it, or touching it with a Feather dipt in the blue Eye-water, or Spirit of *Sal Armoniack*, &c.

C H A P. LXIV.

Of the Poll-Evil.

THE Poll-Evil is an Impostume which arises on the Poll, and, for the most part, is caused by the fretting of a new Halter or Collar, &c. At first it requires no other Method of Cure than what is common to other Biles and inflam'd Tumors, *viz.* by ripening and bringing it to Matter; but sometimes it degenerates to a sinuous Ulcer, tho' that be generally owing to want of Skill.

There

There is a small Sinus under the Noll-bone, where the Matter is apt to lodge, unless Care be taken to keep the Part firm with Bandage; but instead of that, the Farriers generally use to thrust in a long Tent, which raises the Flesh, and opens a Way into the Sinus; and by this means, an Ulcer is created where there needs be none; all therefore that is further necessary on this Head, is to caution the Practitioner against such ill Methods; and, if the Tumor has a very large Cavity within it, it is much better to lay it somewhat open, than to thrust foreign Substances into it; and if it requires an ulcerous Disposition, it must be treated as such. But the Reader may have recourse to the Fifty-fifth Chapter, as also to those Places where we have treated of the Strangles, &c.

C H A P. LXV.

Of Hurts and Bruises in the Withers, &c.

HORSES are very often hurt, or wrung in the Withers, by the biting of other Horses, or unfit Saddles, especially when the Bows are too wide, for by that means they bruise the Flesh against the Spines of the second and third *Vertebrae* of the Back, which form that Prominence which rises above their Shoulders. When the Swelling is moderate, the usual Method is to wash the Part with Salt and Water, or to apply Horse-dung, or Salt and black Soap mix'd together, which very often succeeds; any restrigent Charge, as Bole and Vinegar with Whites of Eggs, has the same Effect, tho' in a different manner; as also the Whites of Eggs, beat up into a Foam with a piece of Alum. This is very much commended.

Sometimes the Hair is rubb'd off, and the Part becomes gall'd, in which Case, nothing is preferable to the rectify'd Spirit of Wine, or Brandy, which ought to be used often, covering the Part with a flaxen Cloth dipt in Bees-wax, and a little Oil melted together, to keep the Dirt from it, and defend it from the Air. But when the Bruise

The Cure.

happens to be violent, an Impostumation may certainly be expected, which must be manag'd according to the Directions laid down in the Cure of the Strangles. And as soon as the Matter is discharg'd, and the Swelling fallen, so that the Part can bear to be bound, a Strap may be fix'd to the Breast-cloth, which may pass between his fore Legs, and be fasten'd to his Suringle, which, in a great measure, will answer the End of Bandage, by keeping the Parts firm.

Solley-

Solleysell complains of the ill Accidents attending the Disorders in the Withers, and it is no wonder, for that Author was always too busy with Tents, and but little acquainted with the true use of Bandage. A Tent in the Withers is very dangerous, and in all Parts of the Back and Loins, for by them the Flesh is raised, as was observed in the preceding Chapter, and the Matter becomes collected among the Spines, whereby sinuous and fistulous Ulcers are form'd, which for the most part prove incurable.

As to those Ailments that proceed from the Bite of another Horse, whether they be on the Withers, the Neck, or any other Part of the Body, they must be often bath'd with Spirit of Wine, and dress'd with Turpentine and the Yolks of Eggs, as all other Wounds and Impostumes; and if the Bruise cause a small Mortification and Deadness in the Part, which sometimes happens, it may be dress'd with *Ægyptiacum*; and if it prove obstinate, the actual Cautery may be made use of to bring it to Digestion; after which it may be manag'd as a simple Wound or Ulcer.

*Bite on the
Withers.*

CHAP. LXVI.

Of a Navel-gall, &c.

A Navel-gall is seated on the top of the Spine, opposite to the Navel, from whence it has its Name, and is generally caused by a bad Saddle pinching a Horse behind, which, being neglected, turns to a foul, fungous Excrecence; and sometimes, after long continuance, to a sinuous and fistulous Ulcer; sometimes it looks like a harden'd brown Jelly, and sometimes black and mortify'd. While there is Moisture and Sensibility in the Part, an Ointment may be apply'd of Quicksilver and Turpentine, *viz.* an Ounce of Quicksilver to every two Ounces of the Turpentine, rubb'd in a Mortar till they be well incorporated, and then spread upon Hurds or Flax: On each side of the Spine, over the Swelling, may be laid smooth dry Pledgits of Hurds, or Bolsters of flaxen Cloth, which may be girt round with a Surfingle. But if the Sore be dead and lifeless, a good sharp Razor or Knife may be made use of to cut it to the Quick, and then let it be dress'd according to the Directions laid down in the Cure of Wounds, &c.

A Sitfast. A *Sitfast* proceeds also from a Saddle-gall, and is another of the Accidents that happens to the Spine; it is dry and horny, and may be cur'd by anointing it first with Oil of Bays, until it turns soft, and then by dressing it with Quicksilver and Turpentine, as above directed, which alone will make a Cure, especially if the hard horny Substance be gently scarify'd in some Places.

C H A P. LXVII.

Of a Shoulder-wrench, Shoulder-pight, and Shoulder-splait.

TO understand the Nature of these Infirmities, it will be necessary to remember, that the Blade-bone of the Shoulder is fixed to the Body, not by Articulation or Jointing, but by Apposition, being laid to the Ribs, and fasten'd by the Muscles which lie under and above it; so when a Horse happens to receive a Blow or Strain in the Shoulder, the Tendons of those Muscles are stretched and relaxed; and when that is violent, it is called a *Shoulder-splait*, and becomes more or less dangerous, as the Horse is more or less hardy.

Every one sufficiently knows, that a Slip, false Step, or any due Position of a Horse's Leg, will strain and weaken the Shoulder, by stretching those Ligaments; and sometimes the Shoulder is affected by a Hurt or Bruise on the Withers, the Reason of which may be easily enough conceiv'd, by any one who will examine into the Structure of these Parts; but when the Accident proves not so violent as to shew a Looseness and Swelling, it is not easily discern'd whether the Lameness be in the Shoulder, in the Foot, or any other Joint. The best Judges have therefore, in all such Cases, thought it proper to examine all Parts from the Shoulder downwards, and even to unshoe the Horse, that they may know certainly where to apply their Remedies. But the Infirmities of the Shoulders may be distinguish'd from those of the Feet, by having a Horse put to Exercise; for if the Lameness be in the Feet, he will halt most when he is ridden; but if it be in the Shoulder, the warmer he grows, the less he will halt; and, if the Wrench be violent, he will be apt to cast his Leg outwards, forming a Circle as he goes. But if none of these Signs are perceivable in his Gait, the surest way is to turn him

him short on the lame Side, for that tries the Muscles the most of any thing; so that if the Grief be in the Shoulder, he will set his Foot on the Ground hardily, and endeavour to favour his Shoulder.

But in order to the Cure, a Distinction *The Cure.* ought to be made between an old Grief, and a Hurt that is newly receiv'd; for, in a fresh Strain, the first Intention is to apply such Things as are proper to allay the Heat and Inflammation, and prevent a too great Flux of Matter to the Part; whereas in an old Grief, those Things are chiefly made use of that attenuate, and render the superfluous Humours fit to pass thro' the Pores; and therefore, as soon as you perceive your Horse lam'd in the Shoulder, by a Fall, or any other Accident, after he has been bled on the opposite Side, a cold restraining Charge may be apply'd of Vinegar, Bole, and the whites of Eggs. Verjuice may be used instead of Vinegar upon the Road, which may be had at any Farm-house; for the sooner a cold Application is made, the better. The Part ought, in the beginning, to be refresh'd three or four times a Day, with a Sponge dipt in Vinegar and Bole; and after that, the following Plaister may be apply'd:

“ Take common Pitch half a Pound, *de minio* Plaister
 “ or a Diachylon six Ounces, common Turpentine four
 “ Ounces, Oil Olive two Ounces: Melt them together
 “ in a Pipkin over hot Embers, continually stirring; and
 “ when these are dissolv'd, add Bole in fine Powder four
 “ Ounces, Myrrh and Aloes, of each an Ounce. Spread
 “ this upon the Horse's Shoulder before it grows cold,
 “ and put fine Flocks of the Colour of the Horse all
 “ over it.

But when the Lameness happens to be of an old standing, the following Ointment will be of great service.

“ Take of the Soldiers Ointment, or Nerve Ointment,
 “ half a Pound, Ointment of Marsh-mallows six Ounces,
 “ rectify'd Oil of Amber four Ounces. Mix them all together, and with a hot Bar of Iron, held as near as possible, chafe the Part twice a Day; and at some Intervals, with camphorated Spirits.” The Soldiers Ointment is made as follows:

“ Take fresh Bay-leaves three Pounds, *The Soldiers*
 “ Rue two Pounds and a half, Marjoram *Ointment.*
 “ two Pounds, Mint one Pound, Sage,
 “ Wormwood, Comfary, Basil, of each half a Pound,
 “ Oil Olive twenty Pounds, yellow Wax four Pounds, Ma-
 “ laga

"laga Wine two Pounds." Bruise all the Leaves, and boil to the Consistence of an Ointment, and keep it for use. This may be made in a smaller Quantity by those who keep but few Horses.

Solleysell recommends the Ointment of *Montpelier* as an excellent Remedy in all Strains of the Shoulders, &c. It is composed of the Ointment of Roses, Marsh-mallows, Populeon, and Honey, of each equal Quantities. The Oils of Turpentine, Earth-worms, Oil of Petre, St. John's Wort, Nerve Oil, Bears Grease, Horse Grease, Mules Grease, Deers Suet, Badgers Grease, and many such Things, are also used in the same Intention. But if the Lameness does not yield to these things, recourse may be had to Rowelling, or to the Fire; but the last is preferable, and less painful than the usual Method of Rowelling, by bruising and blowing up the Shoulder.

And therefore, with a hot Iron, make a Circle the breadth of a Trencher round the Joint, and within the whole Circle pierce the Skin, leaving about an Inch between the Holes, and to each apply yellow Wax and Rosin melted together, until the Escars fall off, and then dress them every Day with Turpentine and Honey, applying Plaisters as directed, until the Sores are dried up.

Some advise swimming a Horse for a Shoulder-splait, from an Opinion of the Joint being out; but if it was really so, he must swim with three Legs, which is almost as impossible as for a Door to move without Hinges. But yet Swimming is not always unsuccessful; and in all old Grievs, it becomes serviceable in the same manner as a cold Bath, by helping Perspiration, and giving a more lively Motion to the obstructed Matter; and therefore the Morning is the properest Time, because the Water is then the coldest, and it should be a continual Custom for some time, to do effectual service.

But in all other respects, the Horse should be put to no kind of Labour, neither ought any one to ride him; for a Weight upon his Back must needs add to the Infirmary, as the greatest stress lies upon the Shoulders; but it will be very proper for him to be walk'd out every Day, when the Weather is favourable; and his Exercise may be increased as his Shoulder recovers Strength; a Patten Shoe may also be set upon the opposite Foot, if he leans too much upon it.

C H. A P. LXVIII.

Of a sway'd Back, and Strains of the Hips.

A Swaying of the Back, is a Pain and Weakness in the Reins, caused by a Fall, the carrying of some heavy Burden, or some other violent Accident; and sometimes the Horse is also hurt inwardly, which brings him into the greatest Disorders imaginable. Yet I am of Mr. *Snape's* Mind, that there is no such thing as a broken Back, in the Sense the Farriers generally mean, otherwise the Horse could not survive it many Minutes: Neither is it very probable that the Spines or Processes of the Rack-bones should be often broke, unless the Horse be very poor and lean, these being, for the most part, very well guarded by the thick Muscles of the Back; and therefore, by a swaying of the Back, is properly to be understood a Stretching and Relaxation of the Muscles and Ligaments of those Parts; and when the Hurt is more inward, the Malady must then consist in the stretching of the large Blood-vessels, &c. but in all such Cases, the Farrier ought, in his Cure, to treat a Horse as if he was hurt both inwardly and outwardly, as there is a constant Sympathy between both.

The first thing therefore to be done, is to take a plentiful deal of Blood from the Neck; after which, the cold Charge, and the other Remedies prescrib'd in the preceding Chapter, ought to be apply'd inwardly those things that are proper to promote Sweat; and, as Mr. *Snape* advises, he may be sweated in a Dunghil, if the common Remedies fail; his Diet must be opening, and all imaginable Care taken to keep down a Fever. He ought to be girt pretty firm over his Reins, yet not so as to hinder the Motion of his Flanks; he ought also to be hung up, or kept in a steady Posture: But if the Weakness continues, you may proceed to the Fire, which must be done by piercing the Skin on the Muscles that lie on each Side of the Spine, avoiding, as much as possible, to burn him near the Flanks, otherwise it will be apt to create a violent Swelling in the Sheath, which would very readily bring on a Fever.

The Strains in the Hips are to be accounted for in the same manner as those of the Back and Shoulders, only they are not so apt to create a Fever, as a swaying of the Back. Sometimes the round Head of the Thigh-bone is, by the Violence of the Accident, thrust out of its Socket,

and then a Horse is said to be *Hipshot*; but if it is not reduc'd immediately, he will be irrecoverably lame. The Cure consists in the same Applications that are proper for a Shoulder-splait.

C H A P. LXIX.

Of Bones broken and out of Joint.

THE replacing of Bones that are disjointed, is a very unsuccessful Operation, insomuch that we have few or no Instances of Horses ever becoming serviceable after their Bones have been displac'd; but broken Bones have often been recover'd; and *Solleysell* gives an Instance of a Horse that had a Fracture of the Bone, with a large Wound in the Flesh; and of a Mule that had a Fracture in the Leg; both which were cur'd by one who was neither Surgeon nor Farrier; and *Ruini*, and other *Italian* Authors, have laid down a Method of Cure for all such Accidents, tho' the Success must be very much owing to the Goodness of a Horse's Constitution and Sagacity, there being some who will favour any Infirmities or Lameness more than others.

When the Bone is fractur'd, the Horse ought to be rais'd in a Sling; and while one holds the Member with both Hands, three or four Inches above the fractur'd Part, another must extend it, and draw it quite streight; after which it is to be bath'd with Vinegar and Bole, and a thick flaxen Cloth dipt in the said Liquor, and laid smooth round it; then with a Roller about two Inches broad, make several Rounds upon the fractur'd Part, ascending also above and below it, making your turnings even, that the Splints may lie on close; after which, apply two or three thin Splints of Wood, wrapt up in linen Cloth or Hurds, always taking care not to let any of their Ends press upon the Sinews; and above them make several turns with a long Roller upwards and downwards, until the Splints are firm and immoveable.

The Leg must be often bath'd above and below the Dressing, with Vinegar or warm Lees of Wine, especially for the first Fortnight, and the Horse kept to a laxative Diet; and the Dressing kept on for the space of forty Days, making it tight as often as it begins to turn slack. If the Horse is inclinable to favour his Infirmary, he will recover without much trouble; but if it be otherwise, it will be proper to keep him constantly in a Sling, suffering the fractur'd Member just to touch the Ground.

This

This is the properest Method for all Fractures in the Legs and Pasterns; but in Cases where other Bones are broke, the greatest Part must be left to Nature, who will make a Reunion in her own way, tho' it may not be without some Deformity; but we can expect no great Assistance, either from Art or Nature, when a Fracture happens on any large Joint, or very near it; or when a Bone is much shiver'd and splinter'd.

The usual Method to reduce Bones that are displac'd, is by casting the Horse on a soft Place, and putting four strong Pasterns on his Feet, drawing him from the Ground, so as his whole Weight may, in a great measure, rest upon the disjointed Member. I have seen two Horses serv'd in this manner, for a Dislocation in the Shoulder, but neither of them succeeded. Some use a Method that is much more cruel; they tie one End of a leathern Thong about the Horse's Pastern, and the other to a yielding Shrub; and then, by whipping him, make him strain with all his force, till the Bone return to its proper Place; but this Method is not only dangerous, but seldom successful.

C H A P. LXX.

Of Hurts in the Stifle.

THES E, as most other Accidents of this kind, come by a Strain or Blow on the Stifle-bone, which is the Knee-pan of a Horse; sometimes the Ligaments which cover that Bone are so much relax'd, that it becomes loose, moving upwards, and downwards, and sideways, by the touch of your Hand; and the Horse going downright lame, is said to be *stifled*; but it is a general Mistake in Authors, to fancy the Bone is misplaced, that being merely impossible, unless the broad Ligaments were cut, and then, indeed, it might burst out of its Place.

The Cure consists in the Application of those Things that are proper to strengthen the relaxed Ligaments. If the Strain be new, Vinegar and Bole, &c. ought to be made use of; and after that a Plaister made of Pitch, Myrrh, Olibanum, Dragons-blood, &c. The Pitch must be melted with a little Oil or Hogs-lard, and the other Ingredients made into Powder, and stirr'd into it while it is warm; after which it may be pour'd upon the stifling Place, covering it with Flocks, or the Stuf-fings of an old Saddle. The Horse ought not to be put

to any hard Exercise, but may go to Grass, or be led Abroad for the space of an Hour every Day, until he is able to bear greater Fatigue.

C H A P. LXXI.

Of the Bone-spavin.

THIS is a hard bony Excrescence growing on the inside of the Hough, not far from the Elbow, and is generated of the Matter which nourishes the Bones and Ligaments. Some Horses are foal'd with this Imperfection; but it proceeds, for the most part, from straining; while a Horse is too young to bear violent Fatigue, which, in process of time, causes Lameness.

The Cure. The main Intention in the Cure, is to remove the Excrescence; but this is hardly practicable when it adheres to the Bone as a Part of its Substance, but only when it lies as an Appendage, in which Case it may be removed by a dexterous Application of the Fire, or by the Use of caustick Ointments; for these, by bringing a Flux of Matter, and a constant Moisture into the Part, will, by degrees, loosen that hard Substance from its Adhesion, so that it may be easily taken off; and for this purpose we recommend the following:

“ Take Quicksilver and Brimstone, of each two Ounces; rub them in a Mortar until they turn to a black Powder; then take *Spanish* Flies and Euphorbium in Powder, of each six Drams, corrosive Sublimate two Drams, the Apostles Ointment four Ounces. Mix them cold in a Mortar or on a Marble.”

The Method of applying this Ointment, is first to rub the Part with a Piece of any round smooth Stick, and then lay over a sticking Plaster to guard the rest of the Hough; this must be made of Rosin, common Pitch, or *Burgundy* Pitch, spread on a thick Piece of Leather, having a Hole cut in the Middle, that the Tumor may come thro' it, upon which the Ointment is to be apply'd, the Hair being also shav'd away, over which must be laid a Pledgit of clean Hurds, fasten'd with an easy Bandage round the Hough, or another sticking Plaster over all. This Ointment will at first draw out a thin Water; but after two or three Days Application, it will form an Escar, which may be scarify'd with a Fleam or Lancet, continuing the Application every other Day until the Bone becomes loose, or its Substance dissolves; and after it is removed, the Ulcer must

must be dress'd with Honey of Roses, and Tincture of Myrrh warm, and then heal'd with Basilicon mixt with Turpentine, &c.

In giving the Fire, *Solleysell* advises to fear the large Vein above and below the Thigh, from an Opinion that the Tumour is fed by it; but it is plainly otherwise, the Office of that Vein being only to take up and carry back that Portion of the Blood which is more than necessary for the Nourishment of those Parts thro' which it passes; and when that Conduit is once stoppt, there must be a greater quantity of Blood and Nourishment retain'd in those Parts, at least for some time, than before; wherefore such an Effect must be owing, not to an Abatement of Humours, but to a greater quantity of Moisture derived from a greater quantity of Blood, whereby the Bone may be more easily separated, as we have already observ'd; but if it chance to have this good Effect in removing a Bone-spavin, the loss of so large a Vessel may easily be of worse Consequence in other Respects, as shall be shewn hereafter.

*An Observati-
on concerning
the taking up
a Vein.*

C H A P. LXXII.

Of the String-halt.

THE String-halt is an involuntary and convulsive Motion of the Muscles, which extend or bend the Hough; when it seizes the outside Muscles, the Horse straddles and throws his Legs outwards; but when the inside Muscles are affected, his Legs are twitched up to his Belly; sometimes it is only in one Leg, sometimes in both; but these things are so well known, that we need not insist on them. It generally proceeds from some Strain or Blow; for whatever creates a more than ordinary Pain in any particular Muscle belonging to the Hough, may cause a too great Derivation of Blood and Spirits, whereby such an habitual Contraction may be produc'd.

The Cure is difficult, and rarely attended with Success; though, in the Beginning, a String-halt may be removed with good Rubbing, and the Use of Fomentations, with daily but moderate Exercise; for by this means the Blood and Spirits may be equally derived into the diseased Muscle and its Antagonist. The last Refuge is usually the Fire, which has been known to answer, at least so far as to prevent absolute Lameness.

C H A P. LXXIII.

Of the Blood-spavin.

The Blood-spavin compar'd to a Varix in Men.

THIS Distemper is a Dilatation and Swelling of the Master-vein, on the inside of the Hough; and is justly compar'd by *Solleysell* to a *Varix* in Men. Its Cure is perform'd by taking up that Part of the Vein which forms the Tumor, and healing the Wound with proper Digestives and good Bandage; some think it sufficient to tie a Ligature above the Swelling, and then make an Aperture in the Vein, letting it bleed until the Swelling falls, after which they unbind the Ligature, apply a restraining Charge of the Whites of Eggs, Bole, and Vinegar, with a firm Bandage; but this is not so certain, especially when the Spavin is form'd under the great Joint of the Hough, and where the Vein takes a winding turn round it, in which Case it will be apt to grow again as soon as the Bandage is removed. But a cold Charge is very necessary all round the Joint, when the Vein is taken up, to prevent the Swelling that must follow upon the Operation.

C H A P. LXXIV.

Of Malenders and Selenders.

THE *Malenders* are Chops or Chinks on the bending of the Knee, which discharge a sharp indigested Matter, causing Pain, and making the Horse go lame before, as the *Selenders*, which appear on the bending of the Hough, make him go lame behind. They both proceed from the same Cause, and are sometimes accompany'd with a Scab, and with a constant staring and bristling of the Hairs.

The Cure.

The properest Method for the Cure of those Infirmities, is, in the first place, to wash them with a Lather of black Soap warm, or with old Chamber-lye; after which apply a Poultice of the Roots of Marshmallows and Linseed, softned with Linseed Oil; and as often as it is apply'd, you may mix half an Ounce of Camphire in Powder, tying it on with a Roller; this may be continued till the Scabs fall off, and the Sores grow clean. Then take Turpentine and Quicksilver equal Parts, stirring them in a Mortar till they be well incorporated; spread a Pledgit with this Ointment, and apply it to the Sore, tying it

it on as above directed, and renew the Dressing every Day until the Cure is perform'd, observing also constantly to wash all the Chinks with Brandy or Spirit of Wine.

C H A P. LXXV.

Of the Hough-bony.

THIS is a hard Tumor that grows on the Elbow of the Hough, and is finewy, like the Matter which covers that Bone. It proceeds from a Strain or Blow; and when it happens to be of long continuance, it becomes difficult and hard to be cur'd, the Substance of the Swelling being like harden'd Glue.

In the beginning take the Soldiers Ointment, Ointment of Marsh-mallows, and Oil of Amber, as directed in a preceding Chapter against Strains in the Shoulder, and rub it into the Part with a hot Bar of Iron, holding it very close, and taking care to fetter the Horse so as he may not strike; if it does not yield to this Remedy, take a sufficient quantity of the Diachylon with the Gums, which may be had at any Apothecary's; melt it in a Pipkin, and pour it warm upon the top of the Hough, renewing it as often as it begins to waste. If the Swelling increase, and turn to an Impostume, it may be ripen'd with Cataplasms, and open'd with a hot Iron, piercing from below upwards, and dress'd with the common Digestive of Turpentine and Honey, or the Yolks of Eggs, with a Mixture of Spirit of Wine, making a firm Bandage over the Part; and by these means it will be cur'd. But in case of a continued and obstinate hardness, you must proceed to the Fire, first penetrating a little way into the Body of the Tumor with a round Iron, and drawing from thence several superficial Lines, which may be dress'd according to the Method already laid down for performing that Operation.

C H A P. LXXVI.

Of the Curb.

THE Curb is a Swelling on the finewy Parts of the Leg, a little below the Elbow of the Hough, but somewhat higher than the Spavin, on the inside, and is generated of the same Matter that nourishes the Tendons and Ligaments; it is broader and higher at its upper Part than below, and sometimes causes the Horse to halt, by hindring the Action

of the Joint. It happens chiefly to draught Horses, and is hardly curable by any other means than Fire; however, the Medicines directed in the preceding Chapters may first be comply'd with; or the Plaster of Frogs, with four times the usual quantity of Quicksilver, may be laid to the Curb, first shaving away the Hair, and renewing it once a Fortnight. This Plaster is somewhat troublesome to make, but it may be had of any Apothecary when bespoke; and I dare answer it will be of greatest Service to remove all hard Swellings on the Bones or Sinews, by discussing them; sometimes it has the Effect of a suppurative Plaster, and will cause and Impostumation, which equally answers the End, as these sort of Tumors often terminate that way with good Success. But they who will give themselves the Trouble to make it, may observe the following Method, which I have borrow'd from one of the best Judges in Pharmacy.

*The Mercurial
Plaster.*

“ Take Frogs Numb. 3. Earth-worms four
“ Ounces, Hogs-Lard one Pound, White-
“ wine one Pint: Boil till the watery Parts
“ are evaporated; strain the Lard, and put to it half a
“ Pound of Litharge, boiling it again with fresh Wine
“ till the whole be incorporated. Then put in Wax and
“ Oil of Bays, of each two Ounces, Adders Fat an Ounce
“ and a half, Frankincense one Ounce, Euphorbium in
“ fine Powder half an Ounce, with Quicksilver half a
“ Pound, first incorporated in a Mortar with two Ounces
“ of Turpentine, two Ounces of Oil of Spike, and half an
“ Ounce of liquid Storax: Make it into a Plaster, and
“ keep it for Use.”

CH A P. LXXVII.

Of a Fardon.

THIS is a hard callous Tumour a little below the Bending of the Ham on the Outside; it is at first scarcely discernable, but in time causes the Horse to halt, and grows so painful, as to make him pine away, and become light belly'd; but it happens most frequently to manag'd Horses, especially those who have been kept too much on their Haunches. The Cure may be first attempted, applying the Mercurial Plaster as above directed; but if it proves obstinate, it must be treated as a Bone-spavin, &c.

C H A P. LXXVIII.
Of Splents and Oslets, &c.

A *Splent* is a callous hard Substance, which adheres to the Inside of the Shank-bone; when there is but one, it is call'd a single Splent; but when there is another opposite to it, on the Outside of the Shank-bone, it is then call'd a peg'd or pin'd Splent.

The Reason of all such Excrefcences may be easily enough apprehended, by those who will take the Pains to examine the Shank-bone of any Horse after the Flesh is scraped off, where they may observe two Appendages growing to the Shank-bone, which are to be met with in all Horses that are young, tho' the Seam by which these Bones are joined to the Shank is, in some old Horses, quite obliterate and worn out, except in the middle. Each of these Appendages resemble a Bodkin, being broad at Top, and narrow at Bottom, and are joined to the Shank by Apposition, and fasten'd by a gummy Matter not unlike Glue.

*The Matter and
 Formation of
 Splents.*

Now if a young Horse be press'd with any extraordinary Weight towards his Shoulders, before these Bones are firmly cemented and put together, but especially when he goes down Hill with a Burden or a heavy Man upon his Back, it bears so hard upon his fore Legs, that it causes these bony Appendages to give way, and suffer a Distortion; and altho' the Horse does not always grow lame upon it immediately, yet it brings a Redundancy of this glutinous Matter, which ouzes from between the Bones on the Inside of the Shank, where there is a little hollowness and hardness under the *Periosteum*, like the Gum which issues from a wounded Tree, and is thus form'd into a Splent. But when the Distortion is violent, or if the Horse be of a tender, delicate Make, the Afflux of Matter will be the greater, so that it ouzes thro' the opposite Side also, and forms a peg'd or thorow Splent, which looks as if a Wedge was struck quite thro' the Bone; sometimes a double Splent is form'd, which is call'd by the *French* a *Fuzee*; and this happens when there is a fresh Afflux of Matter upon a Splent that is already begun, like the Lays upon an Icicle, by the running down of fresh Water upon it. This last sort causes a very great Deformity, and is therefore easily perceivable.

Most of these Swellings make their first Appearance a pretty way below the Knee, where the Cleft between the
 Bones

Bones is the widest, which is very natural; and in some Cases, but especially when they are of long continuance, they not only ascend to the Knee, but go a good way down the Shank, and sometimes backwards towards the Master-finew.

Osselets are little hard Substances that arise among the small Bones of the Knee, on the inside; they grow out of the gummy Substance which fastens those Bones together, and derive their Origin from a Matter like that which produces Splents, and like them proceed from the same Cause, *viz.* the straining of a Horse while he is young, and before his Joints be well knit; and from hence also we may understand the Nature of all those hard Tumors already treated of, which grow near the Joints, whether they be *Spavins*, *Fardons*, *Curbs*, or of any other Kind, their chief Difference consisting in their Situation, being all of them form'd of a Matter which, in time, grows hard, yea, even as the Bone itself; and this is the Reason why they cannot be mov'd but by things that are of the greatest Efficacy. Notwithstanding, if they be discover'd before they acquire such a degree of hardness, they may be made to yield to less powerful Remedies than what we are sometimes constrain'd to make use of.

*The Cure of
Splents, &c.*

But as to Splents, which are our present Business, it is very plain from what has been said concerning their Origin and Growth, if the Infirmary could be discover'd at first, they might be kept down, and wholly prevented by the Application of firm Bandage upon the Shank; for by it not only the Bones would be constantly kept close together, but the *Periosteum* and Flesh united to the Bones, so that there would be no room for any vagrant Matter to lodge between them; but since it is otherwise, that these are seldom taken notice of until they bring a Deformity along with them, or a Halting, they must therefore be treated as other hard Substances of the like Nature.

And *First*, If the Horse be young, and the Splent not of a very old standing, an Attempt is to be made to dissolve it; and for that Purpose nothing is preferable to the Mercurial Plaister, inserted in the 75th Chapter, which must be apply'd spread on Leather, and continued a considerable time, shaving away the Hair as often as it is renew'd; but if it is not to be removed without Suppuration, then rub it soundly with the Handle of a Hammer; and after its Substance has been thus bruised, it may be brought to an Impostume, by applying a Mucilage Plaister, or some
good

good Poultice, made of the Roots of Marsh-mallows, Bean-flour, Fenugreek and Linseed Powder, and such like, with a sufficient quantity of Ointment of Marsh-mallows; and then the Matter may be discharg'd as from a common Bile or Impostume, by making a streight Incision upon it from below upward. But if a more expeditious Method be requir'd, the caustick Ointment, inserted in the 7th Chapter, may be apply'd, with the necessary Precautions, observing further, not to continue it longer than an Escar is form'd by it; or the following Method out of *Solleysell* may be comply'd with, which is very easy.

“ Shave the Hair, knock, rub, and soften the Splent;
 “ then take a piece of the Rind of Bacon, not very fat,
 “ and lay it on the Part with the fat side outwards; af-
 “ terwards apply a flat Cautery, or red-hot Iron, of the
 “ bigness of a Shilling, holding it upon the Skin; and
 “ in the mean time order another Iron to be heated, which
 “ must be apply'd on another Part of the Skin, but still
 “ over the Splent, continue after the same manner till the
 “ Swelling be dissolv'd; then lay a Plaister over it, and
 “ Shavings of Cloth over that, taking care that the Horse
 “ do not bite it off.

But one thing is very material after the removal of a Splent; and that is, to keep a firm Bandage over the Part for some time, to prevent its return; for unless the Parts be kept very close, the same Matter which breeds it at first, will be apt to ingender it again. When the Bone happens to be laid bare, it must be treated according to the Method laid down in the Cure of Wounds.

The Cure of a Splent is hardly to be attempted, if the Horse be grown old, for the Matter becomes then so hard, that there is no way to make it yield, without running a very great hazard; neither is it curable when the Disease is in the Bone; for albeit this is sometimes mistaken for a Splent, yet it is, for the most part, no other than what proceeds from a Caries or an Ulcer in the Bone, which, in time, has been heal'd, and grows into a flinty hard Substance. This may be known by its bunching out and unevenness, and by its hardness.

The Oslets are more difficult and hard to be cur'd than Splents, because of their Situation among the small Bones which are in the Joint, and are therefore only to be attempted by giving the Fire, though even that is not always attended with Success. But these are rarely to be met with.

C H A P. LXXIX.

Of a Ring-bone.

THIS is a hard callous Substance, which grows in the hollow Circle of the little Pastern, immediately above the *Cronet*; it is sometimes hereditary, but more frequently occasion'd by a Strain, and is bred of the like Matter with the other hard Substances we have treated of in the preceding Chapters; sometimes it goes quite round like a Ring, from whence it has obtain'd the Name of *Ring-bone*.

The Cure. The usual Method of taking it off, is by the Application of strong caustick Medicines, such as Quick-lime, Arsenick, Realgar, and the like, the Hair being first shav'd, and the hard Substance scarify'd. Some use unslak'd Lime in Powder, and apply it pretty thick over the Part, fastening it with a Cloth, and then ride the Horse into Water, letting him stand some time in it; by which means the Substance of the Ring-bone is destroy'd; and there is nothing further necessary than to heal up the Ulcer. This is a very expeditious way, but whoever tries it had need be careful to guard the *Cronet*, or else it will be apt to cause a gathering of Matter under the Hoof, which would readily corrode the Coffin-bone. There are others who cut the Ring-bone streight downwards to the *Cronet*, in several Places, and put in Rowels; which, by forming Ulcers, and bringing a Rottenness and Corruption all about the Part, cause the Excrescences to loosen or melt away.

Solleysell observes, that some Ring-bones cannot be removed without giving the Fire, nor does that always succeed, but when the Sole is also taken out, and the Frush laid open; for by this there is a very great Moisture derived into the Part, and at the same time room is given for the Matter to discharge itself, which might otherwise loosen the *Cronet*, by being detain'd in the hollow Circle of the Pastern. The Method is this: "Take out the Sole, and
 "after the second Dressing, cut the Skin in several Places
 "above the *Cronet*, so as to lay the Ring-bone bare; then
 "with a hot Knife cut the Ring-bone thro' the Incisions,
 "till you reach to the bottom, not all at once, but repeat-
 "ing the Strokes gently; in the mean time make a Cleft
 "into the Frush, and keep it open by applying into it
 "Pledgits dipt in a Mixture of Tar, Honey, and Turpen-
 "tine; laying the same Dressing to all the fear'd Parts,
 "until the Escars fall off.

Now

Now it is very plain, a Ring-bone may be removed by any of the preceding Methods, when rightly manag'd; and the only thing that makes them unsuccessful, is, when a Horse happens to be old or diseased, or when it chances to be a natural Imperfection; but the most common Impediment, is the want of Skill to heal up the Ulcers, and to prevent the Matter getting under the Hough, and likewise to keep down the Growth of new Excrescences, which are ever apt to arise on those Parts; and therefore, as soon as the Pain and Anguish is over, the Sores should be dress'd with *Ægyptiacum*, or some other cleansing Ointment; and all the hollow Parts round the Pastern fill'd with Flax dipt in Vitriol-water, or rather Spirit of Wine, and over all a Bandage as firm as the Horse can bear, reaching from beneath the *Cronet* almost to the Knee; this being the true Method to prevent the ill Consequences that may arise in the Cure, &c.

C H A P. LXXX.

Of Wind-galls.

WInd-galls are soft, yielding, flatulent Tumors, seated on either side of the Foot-lock Joint, &c. they are caused by violent straining, or by a Horse's standing on a sloping Floor, and by several other Accidents, as Blows, Strokes from another Horse, &c.

The usual Method of Cure, is by opening *The Cure.* them with a Fleam, to let out the gummy Matter, and applying to the Orifice a little Plaister of Rosin, Pitch, Mastich, Oil of Bays, with the White of an Egg; and there are some who mix with Plaisters of this kind Verdegrease and Turpentine, which is not amiss; but the Ointment made of equal Parts of Turpentine and Quicksilver, will answer the End much better; especially if with it be mix'd a small quantity of Verdegrease, and the White of an Egg to make it stick fast to the Part. The hollow Spaces on each side of the Sinew, ought to be fill'd with Hurds moisten'd in warm Spirit of Wine, and good Bandage apply'd over all the Fetlock, to prevent their growing again.

But to Wind-galls that are large, emollient and softning Medicines are to be made use of, as Poultices made of Mallows, Marsh-mallows, &c. or the Mucilage Plaister, or Diachylon with the Gums spread thick upon Leather. Or the following Charge may be apply'd:

“ Take

“ Take two Ounces of Galbanum pounded, boil it gently in a Pint of Vinegar over hot Embers, with half a Pound of common Turpentine; and after half an Hour's boiling, take it off the Fire, and add to it Mastich, Myrrh, Dragons-blood, and Bole, of each three Ounces; mix, and make a Charge, which must be apply'd hot.

If recourse must be had to caustick Medicines, an Ointment may be made with Quicksilver and Turpentine, of each an Ounce, Euphorbium and Spanish Flies in Powder, of each one Dram; this may be apply'd to the Wind-gall, taking care to guard the great Sinew and the neighbouring Parts, as directed in a preceding Chapter. The Horse must always be ty'd up, to hinder him from biting it off. But if this cause too great an Inflammation, as may happen to some delicate Horses, the Ointment may be made weaker, by mixing a greater quantity of Turpentine with it.

CHAP. LXXXI.

Of a Sinew-sprain, &c.

WHEN the Master-sinew above the Hough, or that above the Footlock, or any of the other Sinews or Ligaments in those Parts, are strained or relaxed, they cause intolerable Pain and Lameness; and when violent, will sometimes bring on a Fever, and endanger a Mortification, unless there be extraordinary Care taken, and timely Applications made. Therefore, as soon as you observe your Horse strain'd in any of those Parts, which, if it be in the Sinew, may be known by its being unbent and relaxed, and by the Swelling and Inflammation, you must apply a cold Charge, such as has been directed for Strains in the Shoulder, &c. and after that, a Plaister to strengthen the Part. But if it be so violent as to create some untowardly Symptoms, making the Horse sick, and forsake his Food, you must in that Case take a plentiful deal of Blood from the Neck, and bathe all his Leg two or three times a Day, with woollen Cloths wrung out of a hot Fomentation, made of Mint, Rue, Penniroyal, Marjoram, Baum, Rosemary, Wormwood, Lavender, and such like Things; for these strengthen and comfort the nervous Parts; after which you may use Spirit of Wine camphorated, keeping it also cover'd with a Cloth dipt in the same, and fasten'd with an easy Bandage. Inwardly may be used all such Things as are proper to promote Sweat, and ease Pain. And as soon as the Anguish is over, it will be proper to apply a good strengthening Charge,

Charge, or Plaister of Pitch, Diachylon, Dragons-blood, and Bole, &c. as has been directed in a preceding Chapter.

Sometimes the Strains in the Sinews of the Legs and Pasterns, are occasion'd by an *Attaint or Over-reach*; we need not therefore bestow any other Place in treating of such Accidents, but only take notice, that when they are accompanied with a Wound, they ought to be dress'd according to the Directions we have already laid down for the Cure of Wounds, avoiding, as much as possible, all oily and caustick Medicines, excepting when some preternatural Excrescences require the use of the latter.

The same manner of Treatment is also *Halter-cast*. requisite to a Horse that is gall'd or wounded by being *cast in his Halter*, applying nothing but good, clean Digestives of Tar, Turpentine, and Honey; and making use of spirituous Fomentations, with a good quantity of Ashes boil'd in them, together with Bandage, as soon as the Part is able to bear it; and by these the Horse will be easily cur'd, if he be otherwise in good Case, without the Pain of corrosive Applications, which only become necessary after the Sinews have been relax'd and rotted with greasy Ointments.

CHAP. LXXXII.

Of the Grease falling into the Legs.

THE Distemper that goes under this Denomination, is a Swelling and Gourdiness of the Legs, which frequently happening to Horses after a Journey, most People have therefore believ'd their Grease to be melted by hard riding, and fallen into their Legs; and that which may have probably given Encouragement to this Opinion, is the Colour of the Matter issuing from the Chinks and Sores in those Parts, when they come to break, somewhat resembling Grease; as the Substance of the Legs is nervous and sinewy, whereby the Matter which comes from thence is different from what is discharg'd from the muscular and fleshy Parts, where the redness and texture of the Blood gives it a different Colour and Consistency.

It would be very little to our Purpose to bestow any time in confuting this ill-grounded Opinion, since the contrary must be manifest to those who have the least Insight into the Oeconomy and Structure of a Horse; we shall therefore proceed to acquaint the Reader, that the Grease has,

in common with all other Swellings, either a Viscidity and Thickness of the Juices, or a Relaxation of the Vessels in which these Juices flow, or both.

But if we examine more particularly into the Matter, we shall find, that besides these, there are other Circumstances which conduce very much to the Swelling, and that is the Situation and Make of the Legs. As to their Make, we have already observ'd, that they are very much compos'd of Nerves and Sinews, whose Vessels are so small, and laid so close together, that the Fluids contain'd in them may very easily become obstructed; and by their Situation, they are the most dependent Members of the whole Body; whereby, according to the Doctrine of Circulation, all the Juices that are to be return'd in the Mass of Blood must ascend upwards in the Veins, which, in those Parts, have little or nothing to help their Progress but the Vibrations and Shakings of the Arteries, together with the muscular Motion. Whereas, on the other hand, the arterial Fluid is constantly forwarded into the Limbs, not only by its Descent, but by its continual Expulsion from the Heart; and therefore, when once the Blood is vitiated, and the Vessels in the Limbs relax'd and weaken'd, a Swelling must of consequence be expected, because a greater quantity of Fluid is carried downward by the Arteries, than in that Case can be return'd by the Veins.

And this is agreeable to all the common Accidents and Causes that usually bring on the Distemper, as Wounds, Bruises, hard and immoderate Riding, coming off a Journey, or from Grass, to stand in a Stable, full Feeding without due Exercise, Colds and Surfeits, Debility and Weakness; and in fine, whatever may any wise relax and weaken the Tone of the Fibres; and if we examine into these more particularly, we shall find that, according to the foregoing Theory, all of them may very naturally bring on the Grease.

For, in the *first* Place, albeit a Wound or Bruise, or other outward Accident in the dependent Parts, is seldom attended with any uncommon Symptoms, if the Horse be otherwise sound, and that due Care is taken in the beginning; yet, if a Horse in these Circumstances be neglected, or his Blood be vitiated, it will be apt to bring a Swelling into the Legs, as all Pain is a *Stimulus* which draws a more than ordinary flux of Humours to the Part affected; and if the Hurt be near any Joint, &c. it causes such a stiffness and aching, that the Horse becomes exceeding lame, and

and unable to lie down ; so that by continual standing, the Legs become swell'd and gourded.

Secondly, By immoderate hard Riding the Sinews and Ligaments are actuated and stretch'd, which is suddenly follow'd with stiffness and Pain in the Joints, whereby, as in the preceding Case, a Flux of Humours is drawn down upon the Legs.

Thirdly, When Horses are come off a Journey, or from Grass, to stand in a Stable, their Legs are apt to turn gourd-y and swell'd ; the first of these Cases differs not from the preceding in what relates to the Pain and Stiffness in the Limbs ; but it has also, in common with the latter, the abrupt breaking off a Habit from the Exercise to Rest and full Feeding ; for while a Horse is upon his Journey, or at his Liberty in the Fields, he is every Day more or less in Motion, whereby the Blood is kept in constant Agitation ; but when he comes to stand still in the Stable, a Check is put to the Motion of the Blood in the small Vessels of the Limbs, while, by an habitual Aptitude, it still continues to be equally detach'd into all Parts by the larger Arteries, which may easily bring on the Grease, even while there is yet no manifest Disorder in the Blood itself. But in the Case of Horses newly taken up from Grass, there is besides this, oftentimes a Default in the Blood, especially when they are suffer'd to run abroad till late in the Year ; for then the Grass loses its Strength, and begets Crudities, which render the Blood, and other Juices, viscid and thick ; and when a Horse is taken off his Exercise, and brought to more generous Feeding, a *Plethora* or Fulness will soon happen, whereby it will be the more apt to stagnate in the Limbs, and cause such Heat and Itching, as must be soon follow'd with a Gourdiness and Swelling. The same Effect is also produced by Colds, Surfeits, and sometimes by Pampering and full Feeding alone, without the Concurrence of other Circumstances.

And *Lastly*, When a Horse has been brought low by Sickness, or repeated Evacuations, or by any other Cause, there follows an universal Relaxation of Body ; so that the Blood, and other Juices, become languid, and are apt to stagnate in those Parts that are the most dependent and remote from the Heart ; not only as the Vessels themselves are relax'd, and lose their Spring, but also from the Heaviness and Inactivity of the Spirits, whereby they become unable to give their Assistance in its Return ; and thus the Grease is oftentimes complicated with some other Distemper.

The Cure.

From what has been said, it will be easy for any one to understand the Nature of the Grease, and the manner of its Production; we shall therefore proceed to the Cure, wherein the first Thing to be regarded, is the State and Condition of the Horse; for if the Grease be an Attendant on some other Sickness, the Cure will be so much the more difficult; and it will be in vain to expect a Recovery until the Disease is remov'd, which has been the Origin and Cause of it; and therefore, if the Horse be hestick, or has got the Yellows, or Farcin, &c. the Methods laid down for the Cure of those Distempers must be follow'd, at the same time proper Applications are made outwardly: But if it be produced of the common and ordinary Accidents, and that the Horse is not otherwise diseased, a Method peculiar to that Distemper only is to be observ'd.

And in this Case, if the Horse has been pamper'd and well fed, the Cure ought to be begun by bleeding and purging, to lessen the redundancy of Humours; neither should these be too often repeated; but what is wanting that way, had much better be effectuated by a more spare Diet, with daily Exercise. For in all the Circumstances of the Grease there is a Tenderness and Delicacy, either originally, or brought on by Habit or ill usage, which is also manifest from hence, that young Horses are most subject to the Grease, as their Bodies are loose, soft, and flexible, and their Juices naturally viscid and glutinous, which is necessary to the Accretion and Growth of all young Animals. Wherefore, when Evacuations are either too large, or often repeated, instead of being serviceable, they often become hurtful, and render the Distemper more obstinate, by adding to that Weakness and Relaxation of Body which is natural to greas'd Horses.

After moderate Evacuations, a Rowel may be made on the Inside of the Thigh, or on the Belly, which may be continued for a Month, or longer, if there be occasion; and in the mean time, the Cinnabar or Antimonial Balls, &c. ought to be constantly given, in the manner we have already laid down for the Cure of the Farcin; and while these Things are comply'd with internally, the Legs should be frequently rubb'd (but not with such hard Instruments as some People make use of, a good Wisp of Hay and a Brush being sufficient for that Purpose.) Baths and Fomentations, such as may draw off the Humours by Transpiration, or render them fit to return back again with the common Current, are also to be made use of; and for this Purpose we recommend the following.

“ Take

“ Take of common Wormwood eight Handfuls, St. John’s Wort, Centaury, Camomile, or the Flowers thereof, of each four Handfuls, Elder-flowers two Handfuls, Bay-berries half a Pound. Boil them in two Gallons of Water, till one third is consum’d, and make a Fomentation.

The Horse’s Legs are to be bath’d three or four times a Day with woollen Cloths wrung out of the Liquor, and apply’d as hot as he can bear them; adding always a third Part of Spirit of Wine or Brandy; and if they be pretty much inflam’d, as happens sometimes when the Sinews are affected, a good quantity of the Ashes of green Twigs of Vines, Walnut-tree, or Oak, may be boil’d in the Decoction, adding more Water. A good Bath or Fomentation may be also made, by boiling these Ashes alone, or the Ashes of any other green Wood, in Water, when the other Ingredients are not easy to be had. The Lees of Wine, with a Mixture of black Soap, are also very proper to be apply’d warm, as also Cow’s Dung boil’d in Vinegar. The following Cataplasm may likewise be made use of with good Success.

“ Take of Honey one Pound, Turpentine six Ounces, incorporate them with a Spoon; then take Fenugreek and Linseed Meal, of each four Ounces, Bay-berries and Juniper-berries dry’d and made into Powder, of each two Ounces. Boil them in three Quarts of red Wine Lees, to the thickness of a Poultrice; and when you take it off the Fire, add two Ounces of Camphire in Powder, spread it on Cloths, and apply it warm to the Legs, fastning all with a strong Roller.” This may be continued for a Week, renewing it once in two Days.

The camphorated Spirit of Wine alone is very good, viz. an Ounce of Camphire to every Pint of the Spirits; and if it be frequently used, it will answer in most Cases where the Swelling is recent and new, and even when it has a tendency to break; for by its great Warmth it puts a Check to that Heat and Itching, which is often the forerunner of Chops and Sores.

But some young Horses are so tender and apt to be greas’d, that even the Impressions of the cold Air in Winter will bring a Swelling into their Legs, in the same manner as it becomes the Cause of kib’d Heels in Children, by constringing and shutting up the Pores in those Parts, and all the Care imaginable can hardly prevent it: In this Case the following Plaister will be of great service, not only to dissipate the Humours, but also to defend the Legs

and Pasterns from the Air, and other external Injuries.

“ Take common Pitch and Diachylon, or *de Minio*, of each half a Pound, Rosin one Pound, Myrrh, Galbanum and Frankinsence, of each four Ounces, Bole-armoniack and Dragons-blood, of each two Ounces, Oil Olive half a Pint. The Galbanum must be strain'd and dissolved in the Oil, with Pitch and Diachylon, over a gentle Fire; after which the other Ingredients are to be added, being first made into Powder, keeping constantly stirring until the whole is incorporated.”

This Plaister may be either spread upon Leather, or apply'd hot upon the Legs and Pasterns, with a wooden Slice, with several Turns of a Roller over it, letting it continue so long as it will stick; and if there be Occasion, it may be renew'd when it begins to crumble and fall off. Two of these Plaisters will serve a whole Winter; and while they are continued, there will be need of little other Means besides moderate and daily Exercise; but in all obstinate Cases, a Horse should be turn'd out to Grass, where he may have his full Liberty.

C H A P. LXXXIII.

Of the Mules or kib'd Heels.

THESE are Chinks and Sores on the Inside of the hind Pasterns, and in the Heels; sometimes they are caused by Gravel or Dirt wounding those Parts, or by travelling in deep Roads; but, for the most part, they proceed from Gourdiuess, that being the first Place where the Matter begins to discharge itself. If they proceed only from riding in deep gravelly Roads, they may be cur'd without any further Trouble than keeping them clean, washing them often with Chamber-lye or Brine; but when they are the Effect of the Grease, they become somewhat more difficult to be removed, and send forth abundance of stinking Matter.

While the Swelling is large, they ought not to be dress'd with Medicines that dry too fast, but with such as are moderately cleansing; for which Purpose two Parts of *Basilicum*, with one Part of *Ægyptiacum*, will be very proper, bathing all the Chinks and Sores, as often as they are dress'd, with Spirit of Wine; if there be a great Foulness and Rottenness, *Egyptiacum* alone may be made Use of; but if that is not sufficient, you may mix with every four Ounces of *Ægyptiacum*, white Vitriol and Powder of Galls, of each half an Ounce, with a Dram of corrosive Sub-

Sublimate in fine Powder; as soon as they are become clean, Quicksilver and Turpentine will perfect the Cure. It will always be proper to keep a Cloth over your Dressing, ty'd on with a Roller, forming a Cross on the Inside of the Pastern, that you may make your Turns above and below the Joint, by which means its Action needs not in the least be hinder'd.

Care should also be taken to dissipate the Swelling, according to the Method laid down in the preceding Chapter; neither ought Internals to be omitted, if his Constitution be faulty, which may be easily known by the Disposition of the Sores.

C H A P. LXXXIV.

Of the Pains and watery Sores on the Legs and Pasterns.

THESE are caused by a serous Matter ouzing thro' the Pores, which is indu'd with such a Sharpness, that it makes the Hair fall off from several Parts of the Legs and Pasterns; sometimes it loosens the Cronet from the Hoof; and sometimes the Flesh appears as if it was disjoin'd from the Bones and Sinews; where the Matter runs, it so hardens the Skin, that it is apt to break out into Cracks and Refts, which discharge abundance of stinking Matter, as in the abovemention'd Case.

The Cure consists chiefly in Internals, and in those things that are proper to rectify the Blood, as Decoctions of Boxwood, Guaiacum, and Sassafras, &c. or the said Woods may be rasp'd and mixt with his Oats, and sometimes among dry Bran. All the Medicines prescrib'd in the Farcin may be made use of in this Case: But if the Horse be inclinable to a Dropsy, which may be known by the yielding of the Swelling, and likewise as the fore Legs will also be affected, and by the other Signs peculiar to that Distemper, he must then be treated accordingly; meanwhile the following Applications may be made outwardly.

"Take Honey, Turpentine, and Hogs-grease, of each a like quantity: Melt them over a gentle Fire in a glaz'd Pipkin, and add a sufficient quantity of Wheat Flour to make it into a Poultice." Or this:

"Take Fœnugreek Meal, Bean Flour, Linseed Meal and Mustard-Seed pounded, of each a like quantity. Boil them over a gentle Fire, with a sufficient quantity of

" Ointment of Marsh-mallows; or, for want of that, with
 " Butter or Hogs-lard, into the Consistence of a Poultice.

These must be apply'd warm to the Legs and Pasterns, to draw out the Matter, and bring down the Swelling. If there be Foulness, you may take a Pound of black Soap, half a Pound of Honey, four Ounces of burnt Allum, two Ounces of Verdegrease in Powder, a Pint of Brandy, or Spirit of Wine, with a sufficient quantity of Wheat-flour. Let this be spread on Cloths, and apply'd as the former.

As soon as the Swelling is abated, and the Moisture dry'd up, it must be very convenient to keep the Legs and Pasterns roll'd up with firm Bandage, whereby the Parts will not only be kept close, but the Influx of fresh Matter prevented; for the continuance, or frequent returns of those watery Eruptions, brings such a Looseness into the Legs, that it causes a rottenness in the Frush, breeds Splents, and sometimes, by rotting the Tendons, becomes the Cause of Quieter-bones, Foundering, and other Distempers in the Feet.

CH A P. LXXXV.

Of Warts, Scratches, Rats-tails, and other Excrescences of the Legs and Pasterns.

TH E S E are all of the same Kind, and are more or less dangerous, as they are situated nearer or at a distance from the large Sinews.

Warts may be wasted by touching them now and then with *Aqua fortis*, or may be cut off when they are superficial. But the Scratches are, for the most part, bred of some tendinous Substance, and have their Roots in or near the Tendons, like the Corns in Mens Feet; sometimes they grow so hard, that by pressing upon the softer Parts, they cause violent Pain and Inflammation; but when this happens, a good Poultice should be apply'd, to ripen the Inflammation, which ought to be scarify'd as near the Excrescences as possible, unless the Matter spring naturally from the Roots of it, which will loosen them so, as they may be easily removed by the use of Medicines that are but moderately corrosive.

Therefore, to proceed methodically, whenever you observe a Moisture and Rottenness, you need only apply a Lump of Rye Leaven mixt with Vinegar and the Juice of Garlick, or Mustard-seed pounded; and in two or three times Application it will bring out the Rottenness.

Stamp

Stamp Onions, the Roots of Marsh-mallows and House-leek, made into Paste with Barley or Rye Flour, has the same Effect. The Mucilage Plaister, or the Diachylon with the Gums spread on Leather, and apply'd to the Part, will also be very serviceable; but if the Scratches be hard, and lie on the Sinews, and thereby occasion Pain and Inflammation, indangering a Fever; in that Case it will be proper to take Blood from the Thigh-vein, and to keep the Horse to an opening Diet. Then apply the following Cataplasm, first shaving away the Hair.

“ Take of Hemlock four Handfuls, Groundsel two
 “ Handfuls, stamp 'em with four Ounces of the Roots of
 “ Marsh-mallows, and boil them in two Quarts of Milk,
 “ till the Ingredients turn soft, then pulp the whole thro'
 “ a Sieve, and make it into a Poultice, with a sufficient
 “ Quantity of Soot and Flour of Brimstone.

This may be laid all over the Parts, and renew'd every Day until the Heat and Inflammation is over, and the Excrescences grow soft and loose, after which they may be manag'd as above directed.

Sometimes Scratches put forth from sinuous Ulcers, which penetrate to the Bone; in this Case you must introduce your Probe into the Orifice, and try all the different Ways it reaches, making Incision with a hot Knife, wherever the Part will admit of it, then make your Cure according to the Directions laid down for the Cure of the Wounds, &c.

Rats-tails are distinguished from the other, because they generally creep from the Pastern to the Middle of the Shanks, along the Master-sinew, or on the side of it; and are so called from the resemblance they bear to the Tail of a Rat. Some are moist, and some dry, and differ only from Scratches in their Figure and Situation, and therefore admit of the same Method of Cure. If they be hard, they may be loosen'd or cut off with a hot Knife, and afterwards dress'd with Turpentine, Tar, and Honey; and, if necessary, the Powder of Verdegreafe and white Vitriol may be mix'd with it. The following Applications are generally us'd for the Cure of Scratches, Rats-tails, Kib's, and all the other Sorances about the Legs and Pasterns.

“ Take Hogs-Grease, Soap, Brimstone, and Honey: Boil
 “ them into a Poultice with a sufficient quantity of Soot;
 “ and to every four Ounces add half an Ounce of the Pow-
 “ der of Verdegreafe.

“ Take four Ounces of black Soap, two Ounces of Quick-lime in Powder, and Vinegar, what is sufficient to make an Ointment.”

Orpiment, Arsenick, Realgar, and such like things, are also made Use of in the same Intention, in the Form of Ointments, with Honey or Hogs-lard; and sometimes in that of a Poultice, by a Mixture of Flour, Barley and Rye Meal, and sometimes Soot: But these hot burning Ingredients are never properly made into the Form of a Poultice, but are chiefly fit for Ointments, which are design'd only to cover the Excreescences, without touching the neighbouring Parts.

Solleysell recommends a Remedy, which he calls a *White Honey Charge*, for Cure of all those Excreescences. It is as follows:

“ Take eighteen large white Lilly Roots, chop and boil them in two Gallons of Whey, or Barley Water; when the Roots begin to grow soft, add of the Leaves of Mallows and Marsh-mallows, of each ten Handfuls; continuing to boil them till they be all reduc'd to a perfect Mash, pouring in Liquor from time to time, to supply what is evaporated; then pulp the Ingredients thro' a Hair Sieve: Take what passes thro' the Sieve, and boil them again with a Pound of Tallow, and the like quantity of Butter; then remove it from the Fire, and when it has done boiling, add Honey and common Turpentine, of each a Pound, and make the whole into the Consistence of a Poultice with Wheat Flour.”

This is to be apply'd cold, in the manner of a Poultice, once a Day, and it will very much help to soften those Excreescences, and take out the Heat and Anguish wherewith they are often attended. The same Author prescribes also an Ointment made of crude Quicksilver and Brimstone with a double quantity of Tallow, which is also very good, but would be much better with equal Parts of Tallow and Turpentine.

CH A P. LXXXVI.

Of a Quitter-bone.

A Quitter-bone is an Impostume which breeds between the Hoof and Coffin-bone, on the upper Part, and makes its first Appearance by a Swelling on the Cronet. It proceeds from a Blow, Strain, or Over-reach; and sometimes it is caused by a long continued Swelling of the Legs and Pasterns, &c.

If

If this Ulcer be not of a very old standing, it may be cur'd by the Application of *Ægyptiacum*, mixt with *Basilicum* or Turpentine; but if it be of some Continuance, and that probably the Matter has, by lodging between the Hoof and Coffin-bone, rotted the Coffin-bone, or the Tendons of the Muscles that pass between that Bone and the Hoof; you must, in that Case, open the Tumor with a Razor, or other sharp Instrument, cutting away all that is corrupted and rotten, either under the Hoof, or any other Part of the Foot; and to make Way for your Operation, you ought to rasp down some part of the Hoof. If any Bits remain that you cannot easily come at with your Instrument, you must bring them off by applying Dossils or Flax dipt in *Ægyptiacum* made warm, which, for the most part, will suffice, laying over all Pledgits soak'd in hot Tar. But if you find some difficulty in separating that gristly Substance, you may mix equal Parts of Myrrh, Aloes and Sublimate, all in fine Powder, making it into a Paste, with a sufficient quantity of Spirit of Wine, and apply it to the remaining Gristle, laying over it Pledgits soak'd in hot Tar, as above directed; and as soon as it is freed from all the superfluous Substances, and looks clean, you may heal up the Ulcer with Tar, Turpentine, and Honey, washing it now and then with Copperas or Vitriol Water.

C H A P. LXXXVII.

Of Foundering in the Feet.

THIS is an excessive Pain in the Feet, whereby the Horse, being scarcely able to touch the Ground, draws himself in a Heap, upon which Account most People have constantly been of Opinion, that a Horse in this Condition must also be founder'd in his Body, and his Grease molten, which immediately falling downwards, causes that Lameness; and therefore in their Cure, have made Applications to the Back and Loins, as well as the Feet. But Mr. *Snake*, in his Anatomy, has not only given the best Account of this Distemper, but has also pointed forth the true Method of Cure, which we shall insert here, for the Reader's Benefit and Satisfaction. In describing the Coffin-bone he has the following Words:

“ Its Substance is fungous or spongy, having innumerable little Holes piercing thro' its Sides, for the Passage of the Vessels, as also very small Sinus's, whereinto are implanted the Ends of the Tendons of the Muscles that
“ move

“ move the lower part of the Leg and Foot, whose Fibres
 “ being at any time affected, either by Bruises, ill shoe-
 “ ing, or standing in the Water after hard Riding, while
 “ the Horse is hot; or by standing still in the Stable
 “ for several Days, without having the Feet stopt up, and
 “ the like; I say, the tendinous Fibres being affected by
 “ these or other Means, cause the Horse to have such great
 “ Pain in his Feet, that he can scarce endure to tread up-
 “ on them, which Lameness we call a *Founder*. Now this
 “ Distemper is so much the harder to cure, by reason these
 “ Fibres lie so far out of reach, most of them running on
 “ the upper side of the Bone (betwixt it and the Hoof)
 “ and not to its bottom; so that the Hoof growing upon
 “ the sides; as the Soal doth at the bottom, there is great
 “ hazard; but we shall miss effecting a Cure, if we only
 “ pull the Soal out, and do not cut part of the Hoof off
 “ also. This is not my bare Opinion, but the Experience
 “ of those who have had good Success in curing founder'd
 “ Horses, who, by raising the Hoof from the *Crown*, or top
 “ of it, to the very bottom, in five or six Places, until they
 “ have made the Blood come, and then applying these Re-
 “ medies to those Places, have made those Horses sound,
 “ whom the drawing out of their Soals would not cure.

Now it is very plain, when the Infirmary lies in the ten-
 dinous Fibres which are inserted into the upper part of
 the Coffin-bone, it cannot readily be removed by barely
 taking out the Soal, as Mr. *Snape* has justly observ'd; and
 therefore the Method he has laid down ought, in all ob-
 stinate Cases, to be comply'd with, as the most certain;
 and what, if rightly manag'd, may, for the most part, be
 attended with good Success; and nothing can be more
 properly apply'd to the Wounds made in the Hoof, than
 Tar, Turpentine, and Honey, melted together, with a
 fourth Part of Spirit of Wine, soaking Pledgits of clean
 Hurds in this Mixture, and laying them pretty warm up-
 on the Rasures or Chinks, omitting two Days after the
 first Dressing, continuing afterwards to make your Appli-
 cations every Day, until the vacant Spaces of the Hoof are
 filled up. The same Applications ought also to be made
 to the Soal, covering the whole Foot with flaxen Cloths
 dipt in Oil and Vinegar beat together, which may be fas-
 ten'd with a Roller, or a pretty long piece of Lint.

But the preceeding Method is only necessary in obstinate
 Cases, for many times the Foundring is cur'd only by melt-
 ing Pitch and Tar, with a sufficient quantity of Hogs-
 lard,

lard, pouring the Mixture boiling hot upon the Soal, and stuffing it up very carefully with Hurds, and above them a piece of Leather with Splents. This is very good, but would be still more efficacious, if the Soal was par'd somewhat thin, and half an Ounce of Camphire dissolv'd in the Mixture, just as it comes off the Fire.

C H A P. LXXXVIII.

Of Surbating, &c.

A HORSE is said to be surbated when the Soal is worn, bruis'd, or spoil'd by any Accident, as by bad Shoeing, especially when they lie too flat on the Foot, or when the Horse goes too long barefoot; as also by travelling in hard Ways, or among dry hot Sand in hot Weather, which dries the Hoof, whereby the Soal becoming hard, presses upon the soft Parts beneath it. If a Horse be surbated by bad Shoeing, you may know the Part that is affected by the thinness of the Shoe where it presses most; and therefore it ought to be par'd deepest in that Part, before another is set on; but if the Shoe is not in the Fault, it may be known he is surbated, by his continual hitching and moving; but by feeling his Hoofs, you may observe them both very hot and dry.

The Cure is very easy before it becomes attended with other Accidents, and may be performed only by stopping up the Feet with Ox or Cows-dung and Vinegar; some break a couple of new-laid Eggs, and apply them raw to the Soals, and then stop them up with Ox or Cows-dung; some use only Hogs-Grease boiling hot, and thicken'd with Bran; and there are others who make use of Vinegar and Soot boil'd together; but nothing will be more efficacious, in case it be troublesome, than first softning the Soal with the Application of unctuous things, and, after that pouring a Mixture of boiling Pitch and Tar, &c. upon the Soal, as directed in the preceding Chapter.

C H A P. LXXXIX.

Of Retracts and Pricks in the Foot.

Nothing causes more Pain and Trouble than the Accidents that happen to the Feet by bad Shoeing, or when sharp Splents or Stubs, &c. are stuck in the tender Parts within the Soal; the Reason of which cannot be very difficult to any one who is acquainted with the Foot of a Horse, which

which consists of a Bone that is very open and spongy; and which, as has been observ'd in a preceding Chapter, is full of little Holes for the Passage of Vessels, and several Sinus's for the Insertion of the Tendons of the Muscles, which compose most of that Substance which lies between it and the Hoof; and therefore, when once those sensible Parts are wounded by the abovemention'd, or other Accidents, they turn to Ulcers, that are very difficult and hard to be cur'd, unless they be timely prevented. And that which also contributes greatly to this, is the disposition of the Hoof; which although it be a defence to the Foot, yet, as all the other Parts are inclosed within it as in a Box, the Artist is thereby often at a loss to find out the true Place where the Grievance lies; for in all Parts that are cover'd with Flesh, a Tumor will arise outwardly, even tho' its Cause be in the Bone; but the Hardness of the Hoof hinders its Elevation and Swelling; and as Nature always makes her Efforts in Places that are weak, and the least capable of Resistance, so it is not uncommon to find a Swelling and Rottenness about the Frush, or about the Cronet, which is sometimes accompanied with a Swelling and Gourdiness of the Legs and Pasterns, when the Cause is from a Caries in the Coffin-bone.

Now, it is very demonstrable from what has been said, that all such Effects may be produc'd by a prick of a Nail, a Stub, or a Fleak, when it sticks in those tender sensible Parts, tho' the first is seldom attended with any bad Accident, excepting when the Horse's Blood is distemper'd; and all that is necessary, is only to draw the Nail carefully out, and pour in a little Oil of Turpentine or Spirit of Wine into the Orifice, or rather a little melted Wax, leaving it without a Nail for some Days, and taking Care not to ride the Horse into Water.

But if there be any Fleak or Piece of Nail remaining in the Quick, which may be known by examining the Nail you have pull'd out, or by the continued Pain, with a constant Discharge of Matter, you may introduce a Piece of dry Sponge, made in form of a Tent, with a Thread drawn thro' the End of it: This may be renewed every Day, paring the Soal very thin over the Orifice, that it may stretch and widen; for by that means the Fleak or Piece of Nail may become loose, and have room to fall off with the Matter. But if after all you find a continued Lameness, and the Matter that comes from the Sore thin and bloody, or yellow, viscid and stinking, you may then reasonably conclude there is an Ulcer form'd either in the Bone or
among

among the Sinews; in that Case it will be proper to take up the Soal, and, with a Razor or Fleam, make Incisions until you have got a full view of the bottom of the Sore, taking care not to wound the large Sinews, if possible, unless they be mortify'd and rotten; you need only apply dry Lint to the Part, or Lint dipt in Spirit of Turpentine, for the first Dressing, which needs not to be removed for two or three Days, in which time the Wound will be digested, and the Blood turn'd to Matter; and if the Coffin-bone be foul, you may scale it by the Application of some caustick Medicine, as the Powder of Sublimate mixt with Honey, and spread on a Pledgit, or with Spirit of Vitriol; but the best way is to sear it with a hot Iron; and when the Scales are fallen off, you need only dress it with Pledgits dipt in Tincture of Myrrh and Aloes, until the Bone is cover'd, laying Pledgits over these, dipt in a warm Digestive of Turpentine, Honey, and Spirit of Wine. If any Accident happen, as the putting forth of proud Flesh, &c. it may be kept down with such Remedies as have been prescrib'd in the Cure of Ulcers. To allay the Heat and Inflammation, which often happens on such Occasions, you may charge the Hoof with Vinegar, Bole, and the Whites of Eggs; and if the Anguish reaches higher, you may charge the Leg and Pastern with a Mixture of Wine-lees and Vinegar, keeping the Horse all the while to moderate Feeding.

But if after all this the Horse continues lame, and that you find some Difficulty to make a Cure, you may readily suspect the Anguish of this has caused an Ulceration in some other Part of the Foot; the best way is to raze the Hoof in several Places, according to the Method laid down in the 47th Chapter; and when you have found the grieved Part, you are to treat it as an Ulcer, &c.

C H A P. XC.

Of the running Frush.

THIS is a scabby and ulcerous Disposition in the Frush, which sometimes causes it to fall off by degrees. It may be known both by the Eye and Smell, resembling that of old rotten Cheese. It is not dangerous, but very troublesome, as it causes a continual Itching.

In order to the Cure, you must pare the Foot with your Buttress as near as you can, then wash the Part with Lime-water or Allum-water boiling hot; then apply a Charge made of Soot, Vinegar, and the Whites of Eggs, and wash
the

the Parts sometimes with Vitriol-water; at least, when you perceive the Itching gone, pour melted Tar all over the Frog, and keep the Foot clean from Dirt and Filth.

C H A P. XCL

Of the Crown-scab.

THIS proceeds from a Malignant sharp Matter ouzing thro' the Skin above the *Cronet*, or Coronet, which frets off the Hair, and hardens into a white mealy Scab. In some Horses it is accompanied with a Moisture, and sends forth a stinking Matter, like the Pains and watry Sores describ'd in the 84th Chapter.

The Cure is, first, to scrape off the Scabs gently, and afterwards wash the Sores with Copperas or Vitriol-water; some make use of Spirits of Wine, wherein Tobacco has been infus'd, which often succeeds; others cure this Scab by applying Soap and Salt; but if it be of an old standing, and grown very obstinate, the following Plaister will be of great use.

“ Take Rosin half a Pound, Pitch six Ounces, Turpentine four Ounces, Verdegrease and Brimstone in fine Powder, of each three Ounces: Melt the Pitch, Rosin, and Turpentine, over a gentle Fire, and then stir in your Powders; if it be too hard, you may soften it by adding a little more Turpentine; and if you incorporate a small quantity of Quicksilver with it, it will be so much the more effectual. This must be spread on Leather, and apply'd to the Part, first Shaving away the Hair, letting it lie so long as it will stick.

The same may be apply'd to the Legs and Pasterns, if the Affection spreads above the *Cronet* to those Parts, giving your Horse now and then a little Antimony among his Oats, until he be cured. But if by reason of this Scab, the *Cronet* become ulcerated, and some Part of the Gristle be infected, as sometimes falls out, you are to extirpate all that is useless, and heal up the Sore, as has been directed in the Cure of Ulcers, &c.

C H A P. XCII.

Of Figs.

THES E are spongy Excrescences, which most commonly grow out on the Feet of such Horses as are high and hollow, with large fleshy Heels; they are caused by all the com-

common Accidents that happen to the Feet, as Surbating, Foundring, &c. and oftentimes they are the Consequence of a long continued Gourdiness in the Legs and Pasterns. Their Seat is, for the most part, at the top or side of the Frush; but when they are suffer'd to grow old, or are dry'd up with strong Ointments, they take another Course, and spread to the Corner of the Heel. They are, as most other Excrescences of that Kind, bred and nourished of the same Matter which sustains and nourishes the finewy and nervous Parts, and are only to be cur'd by Extirpation.

Therefore, if the Figs be on the side of the Frush, pare away so much of the Roof as may give room to reach the Sore with a Fleam or Lancet, then cut the Soal about the Fig, and take them clean out, avoiding, as much as possible, to wound the large Blood-vessels. Let your first Dressing be made of dry Hurds, to stop the Bleeding; and if it requires a stiptick Remedy, consult the 51st Chapter; two or three Days thereafter remove your Dressing; and if any part of the Excrescence be left, you may destroy it by applying *Ægyptiacum* spread on Bolsters or Pledgits of Hurds, mixing with every Ounce of the said Ointment half a Dram of Arsenick or corrosive Sublimate, enlarging or diminishing the Quantity of the latter as you find your Horse able to bear it, or the Circumstances of the Sore may require; and then heal up the Sore with a good Digestive and spirituous Applications, &c.

But if the Fig has its Insertion into the finewy or gristly Substances in those Parts, you must take up the Soal; and if any part of the Gristle be corrupted, you may cut it off with a Razor, or other sharp Instrument. If the Bone be ulcerated and *carious*, you may touch it with a hot Iron, and then dress it with Pledgits dipt in a Tincture of Myrrh, Aloes and Frankinsence, as has been directed in other Cases of the like Nature; and also with warm Turpentine and Honey of Roses, until the Bone is cover'd; afterwards heal up the Sore with some good Digestive.

C H A P. XCIII.

Of Hoofs brittle or too soft.

THESE two Extrems are equally prejudicial, as they are often the Cause of a great many ill Accidents in the Feet. The softness of the Hoof may proceed from a humid, moist Constitution, from going in wet and marshy Grounds, or standing constantly on wet Litter, or from
any

any Infirmary that may bring a too great Moisture into the Feet, as a Gourdiness and Swelling in the Legs and Pasterns, &c. And from hence the Reason of dry Hoofs may be easily understood, as it must come from a contrary Cause, viz. from standing too dry, a dry and hot Constitution, or from any Infirmary depriving them of their due Nourishment.

If the Hoofs be too dry, most greasy and unctuous Remedies are proper to soften them, as Lard, Sheeps or Ox Suet, Oil Olive, or rather a Mixture of these together. But they will be much the better, if they be made into the Consistence of a stiff Ointment, by adding *Galbanum*, *Wax*, *Olibanum*, and such like things. But an equal quantity of Tar, Tallow, and common Honey incorporated together will answer the End very effectually; especially while there is no other Accident besides a bare Hardness of the Hoof. But if the Horse's Hoofs be too moist, they may be bath'd every Day with warm Vinegar, Verjuice, Copperas-water, and such like; or with these boil Powder of Galls, and let the Horse stand dry, keeping him at the same time to moderate Feeding, and his Hoofs will soon grow hard.

C H A P. XCIV.

Of narrow Heels, &c.

A Horse that is Hoof-bound, and has narrow Heels, has the Quarters of his Foot narrower towards the Shoe than the Cronet; so that the soft Substance between the Coffin and the Hoof is pressed upon, which causes the Horse to go lame. Sometimes the Hoof presses on both Quarters, but very often on the Inside only, being much weaker, and more easily bent than the other; and in some Cases, the whole Hoof is shrunk on the upper Part, that it makes a hollow Circle under the Cronet, pressing so hard, that it intercepts the Nourishment that should go to the Foot.

This Imperfection proceeds sometimes from a Dryness of the Hoof, but very often from strait Shoeing, and by weakening the Quarters of the Hoof by paring them too deep; and sometimes it is caused by Foundring, and other Accidents to which a Horse's Feet are expos'd.

The Cure is, first of all, to shoe him with Lunets or Half-moon Shoes, or with the *Pantofle* Shoes describ'd by

by *Solleysell*, or any other that will sufficiently press out the Quarters; after which anoint his Hoofs with the softening Remedies prescrib'd in the preceeding Chapter, and let him stand some Days in his own Dung. But if the Binding and Pressure of the Hoof cannot be reliev'd thereby, recourse must be had to an Operation: And if the Hoof be bound all round the *Cronet*, first give the Fire, making several Rases from the Gristle of the *Cronet* to the Shoe, piercing the Hoof about the thickness of a Crown-piece, repeating the same Operation on the other side of the Heel; for the Fire softens the Hoof, and makes it stretch, after which keep the Foot constantly mollify'd and soften'd, as already directed. But in the most obstinate Cases it will be necessary to take out the Soal, which our above-mention'd Author observes to be the best and speediest Remedy, and whose Method is likewise the most reasonable; which is, after the Soal is removed, to cleave the Frush with a Fleam, and fix a Splent of Iron to the Part, placing it so that it may open the Heels, and keep them an Inch or two wider than they were before. This is plain to Sense, because the intermediate Substance that fills up the Cleft will keep them constantly wide enough for the time to come, if Care be taken in their Shoeing, &c.

C H A P. XCV.

Of a false Quarter.

A False Quarter is a Rest or Chink in the Quarter of the Hoof, from top to bottom; it happens generally on the inside, that being the weakest and the thinnest, and proceeds from the driness of the Hoof, but especially when a Horse is ridden in dry, sandy, or stony Ground, in hot Weather, or in frosty Weather, when the Ways are flinty and hard; it is likewise caused by bad Shoeing, and all the other Accidents whereby a Horse becomes Hoof-bound; for the narrowness of the Heels, and brittleness of the Quarters, continually expose a Horse to all the said Accidents.

This Accident is both dangerous and painful, for as often as a Horse sets his Foot on the Ground, the Chink widens; and when he lifts it up, the sharp Edges of the divided Hoof wound the tender Flesh that covers the Coffin-bone, which is, for the most part, follow'd with Blood, and it must of course be apt to render a Horse lame, as it is very difficult to form a Re-union.

The usual Method taken to remedy this Imperfection, is by cutting off that Part of the Shoe which lies upon the Chink, that it may be wholly uncover'd; then with a drawing Iron to open the Rift to the Quick, filling it up in all Parts with a Rowel of Hurds dipt in Turpentine, Wax, and Sheeps Suet, molten together, renewing it every Day until the Seam is fill'd up; after it is clos'd in the top, or upper part, it is usual to draw the Place betwixt the Hoof and *Cronet*, which, by softning the Hoof, and bringing a Moisture into it, causes it to grow the faster, and shoot downwards. But there are some who fear the *Cronet* above the Crack, without piercing the Skin just where the Hoof begins; and with another Iron fear the Chink about the middle of the Hoof, which succeeds very well, if Care be taken to keep the Hoof moist with Applications of Tar, Honey, and Grease. Some pour *Aqua fortis* into the Rift, when the Pain is violent, to deaden the Part, making a Border of Wax on each side, to hinder it from spoiling the rest of the Hoof; and there are others who prepare a flat piece of Wood, about an Inch in breadth, but at the same time so slender that it will bend like a Hoop, and of a sufficient length to go twice round the Hoof; and having first drawn the whole length of the Cleft, they apply Turpentine, Pitch, and Suet, molten together, to the Sore, and fasten the Hoof with pieces of Lint or Filleting. This is a Contrivance to answer instead of Bandage, to keep the Chink united, and to prevent it from jarring when the Foot is mov'd; which is, indeed, very reasonable; for the least Motion will be apt to discompose the tender Substance that grows up in the Cleft, and cause Impostumation, which will again open the Hoof. But I am of Opinion, instead of this troublesome way, the following Method will be found more easy and successful.

First draw the whole length of the Cleft gently with your drawing Iron, then anoint the Hoof with Tar, Honey, and Suet molten together, as directed; for nothing can be more proper for the Hoof; and lay a thin Pledgit dipt in the same along the Cleft; after this take of Rope-yarn, such as the Sailors use, which is no other than Hemp moisten'd in melted Pitch and Tar, and spun loose; apply the Yarn, all down the Hoof, beginning at the *Cronet*, and descend downwards, one Lay after another, as close as the binding of the Hoops of Wine-casks, laying a smooth Pledgit of Flax behind, to keep it from fretting the Heel. This should be open'd once in three or four Days, that the Cleft may

may be drest; and to prevent any Inconveniency that can happen by the Opening, a thin Staple may be also contriv'd with Points like Horse-shoe Nails, cast off obliquely, to take a slender Hold, the Plate of it crossing the Cleft where Part of the Shoe is cut off, and the Nails coming out on each side the Cleft on the upper part, to be riveted as the other Nails. By this Method, a Cleft in any part of the Hoof may easily be cur'd, if the Horse be not very old or diseased.

C H A P. XCVI.

Of casting the Hoof.

THE Loss of the Hoof is occasion'd by Pricks, Stubs, Foundring, Surbating, or whatever Accident may bring an Impostumation into the Foot, whereby the whole Coffin of the Hoof becomes loosen'd, and falls off from the Bone; and sometimes the Coffin-bone, which is spongy and easily broke, falls off in large Pieces along with the Hoof; but this is a very desperate Case, since a perfect Foot can never be form'd after so great a Loss; but a new Hoof may be procured with Care and proper Applications, if the Coffin-bone, &c. be not injur'd.

The usual Method to procure a new Hoof, is to apply to the Coffin Tar, Turpentine, Wax, Oil, Pitch, and such things, melted together; then they make a Boot of Leather, with a strong Soal, to be lac'd fast about the Pastern, bolstering and stopping the Foot with soft Flax, that the Tread may be easy, renewing the Dressing every Day until the new Hoof grow. The Boot is certainly very proper, but the Ointment will not always be sufficient to make a sound and smooth Hoof; and therefore if the Part grow fungous, which is very common, and, in a great measure, the Cause of all the ill Shape and unevenness of the new Hoof, sharper Applications ought to be made use of; for which purpose we recommend the following.

“ Take of Rosin half a Pound, Oil Olive one Pound:
 “ Dissolve the Rosin in the Oil over a gentle Fire; take it
 “ off, and when it begins to cool, add Myrrh, Aloes,
 “ Mastich, and Olibanum in fine Powder, of each two
 “ Ounces, and make it into an Ointment.

“ Take of this Ointment and *Ægyptiacum* equal Parts:
 “ Dissolve them over the Fire, and with Pledgits soak'd
 “ therein dress the whole Hoof; and having made an easy
 “ Bandage

" Bandage over it, return it into the Boot. If the Ointment
 " be requir'd more powerful, you may add the Powder of
 " white Vitriol or burnt Allum, viz. two Ounces of either
 " to a Pound of the Ointment, with half an Ounce of
 " Orpiment, whereby the Hoof may be preserv'd smooth,
 " being dress'd once a Day in the manner directed,

It is the Way of some Farriers, when they observe the new
 Hoof a growing, before the old one falls off, to pull away
 the old one; but they ought never to be too hasty, unless
 some Accident happen to require its Removal; for the old
 Hoof serves as a Cover and Defence to the new one, and
 makes it grow the more smooth and even, as in a Mould;
 and Nature, for the most part, will cast it off of her own
 accord, as soon as it becomes useles. I knew a Horse in
 this Condition that was turn'd out into a Field, where there
 was a Shade for him to lie under; he lay most part of the
 time his Hoof was a growing, and had Hay given him five
 or six times a Day; and by favouring his lame Foot, the
 old Hoof came off, and the new one grew with very little
 assistance; and although he was not young at that time,
 he afterwards travell'd and did very good service.



F I N I S

